User's Manual

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Introduction.

CDRoller is a powerful, easy-to-use and low cost toolset for data recovery from optical discs (CD/DVD/Blu-ray), hard and flash drives, memory cards and floppy disks.

Powerful: CDRoller finds, retrieves and copies the lost data from CDs, DVDs, Blu-ray discs (BD, HD-DVD) hard and flash drives that seem to be inaccessible for Windows standard tools. While this does not include the disks that are physically damaged, the program will:

- Effectively retrieve the data off the discs created by "drag and drop" CD/DVD/BD writing software, such as well-known Sonic (Roxio, Adaptec) and Ahead Nero software packages, CeQuadrat's PacketCD, DLA, B's CLiP and others.
- Read unfinalized ("open", "left as-is") CDs and DVDs, including the discs with Microsoft's Live File system, created by Windows 7, 8, 8.1, 10 or Vista.
- Include an own UDF Reader. No need to install 3-rd party software in order to read an old UDF discs on your new machine under Windows 7, 8, 8.1, 10 or Vista.
- Offer all-in-one toolset for DVD Video Recovery. Find and recover the lost DVD movies, convert VOB or VRO data into generic MPG files and, finally, make a new disc that can be played back in the most DVD players.
- Find, identify and retrieve the lost video off non-finalized DVDs created by a wide set of standalone devices that record directly onto discs: Hitachi, Canon, Panasonic, Samsung and Sony DVD camcorders as well as standalone video recorders.
- Recover CD data written by Sony Mavica CD digital cameras.
- Provide a direct access to raw disk data using a special (kernel-mode) driver, bypassing the restrictions imposed by Windows Vista / 7 / 8 / 8.1 /10 under standard user (non-administrative) account.
- Examine images (pictures, photos) of all major graphic formats (BMP, JPEG, JPEG 2000, GIF, PNG, PCX, PSD, EPS, TIFF, WMF, ICO, TGA), popular digital camera raw formats (Canon, Kodak, Minolta, Nikon, Olympus, Pentax, Fuji, Leica, Sony, Sigma), DICOM files (medical imaging) and many others.
- Retrieve the lost pictures, video and other types of files from flash memory cards, such as SmartMedia, Memory Stick, CompactFlash, xD Picture Card and other flash memory drives.
- Find and retrieve the lost data on Hard Disk Drives (HDD), Solid-State Drives (SSD), floppy disks and other types of Windows disks/drives with FAT / NTFS file systems.
- Burn the recovered data to CDs, DVDs and BDs. The "Burn" option is integrated into a common shell. Just write a new disc with recovered data within a couple of minutes, without leaving CDRoller!
- Erase CD, DVD and BD re-writable media. Support of quick and full erase methods.
- Retrieve back up files from the discs recorded in the several stages (multisession discs).
- Find and retrieve the lost files on UDF discs, including: accidently deleted files, files on quick-formatted disc, files on incorrectly closed disc, etc.
- Examine disc sectors at low level and display the sector content in text, binary, hexadecimal or unicode mode. Support of external hex editor for detailed analysis of disc contents. Recommended for engineering purposes and also for law enforcement and forensic investigators.
- Provide direct access to the hardware (CD/DVD/Blu-ray drives), bypassing the Windows File System. Search for the lost tracks (sessions) every time when you insert a new disc into the drive. Support of SCSI Pass Through Direct (SPTD) layer under Windows 2000/XP/2003/Vista/7/8/8.1/10 .
- Identify the lost files on ISO/Joliet discs with the damaged file system (volume descriptors, path tables and directories), using the raw data only.
- Create and use an own image file to manage disc sectors.
- Extract ISO Image file and burn it to a new disc.
- Rescue the data from scratched, damaged or defective discs.
- Extract tracks from audio CDs
- Test disc readability

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Easy-to-use: All features are integrated into a common and easy-to-use intuitive shell.

Low-cost: A Personal License costs only 39 USD. This license does not restrict use to a single user on a single computer. For example, you can use the program freely on 3 computers: at work, home and laptop.

Toolset: The program offers a set of instruments to work with a different formats of optical discs (CDs, DVDs, BDs, HD-DVDs) and file systems (UDF/ISO/Joliet/NTFS/FAT).

CD / DVD / BD / HD-DVD Data Recovery: Unfortunately, there is a lot of factors that can cause you to lose access to the data on your optical discs. System or power failures, hardware problems, media and CD/DVD/BD mastering software problems... Often, when a disc becomes inaccessible more than a single factor has contributed to the problem. Fortunately, many of such problems that prevent "normal" access to the data can be bypassed when using CDRoller.

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1. Installing CDRoller.

To install CDRoller, you need at least:

- Microsoft Windows 2000/XP/2003/Vista/7/8/8.1/10 operating system
- Intel Pentium or compatible CPU
- 256 MB of RAM
- 12 MB free hard disk space
- CD/DVD/Blu-ray drive(s).

Note. You must have administrator rights to install the program under Windows 2000 or Windows XP.

There are no special considerations for installing CDRoller. It uses no .INI files, and only uses the registry for holding installation options. It will initially use default options that will be changed further via the user preferences.

To install CDRoller:
1. Run the installation file. The installation program displays a **Welcome** page similar to the one shown here.

Setup - CDRoller
Welcome to the CDRoller Setup Wizard
This will install CDRoller version 9.60 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

Click the **Next** button.

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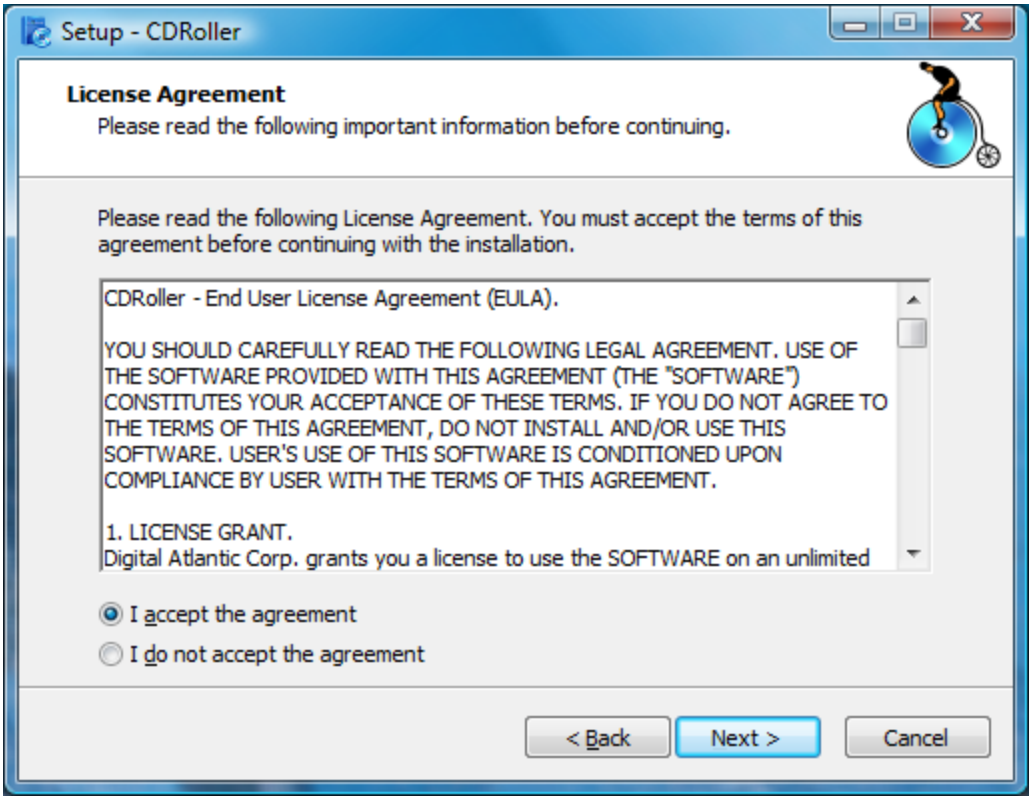
2. The installation program displays a **License Agreement** page similar to the one shown here.


Setup - CDRoller
License Agreement
Please read the following important information before continuing.
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
CDRoller - End User License Agreement (EULA).
YOU SHOULD CAREFULLY READ THE FOLLOWING LEGAL AGREEMENT. USE OF THE SOFTWARE PROVIDED WITH THIS AGREEMENT (THE "SOFTWARE") CONSTITUTES YOUR ACCEPTANCE OF THESE TERMS. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, DO NOT INSTALL AND/OR USE THIS SOFTWARE. USER'S USE OF THIS SOFTWARE IS CONDITIONED UPON COMPLIANCE BY USER WITH THE TERMS OF THIS AGREEMENT.
1. LICENSE GRANT.
Digital Atlantic Corp. grants you a license to use the SOFTWARE on an unlimited
I accept the agreement
I do not accept the agreement
< Back
Next >
Cancel

Read the license agreement displayed and if you agree to its terms click the **I accept the agreement**. You must agree to terms of the license agreement to install CDRoller.

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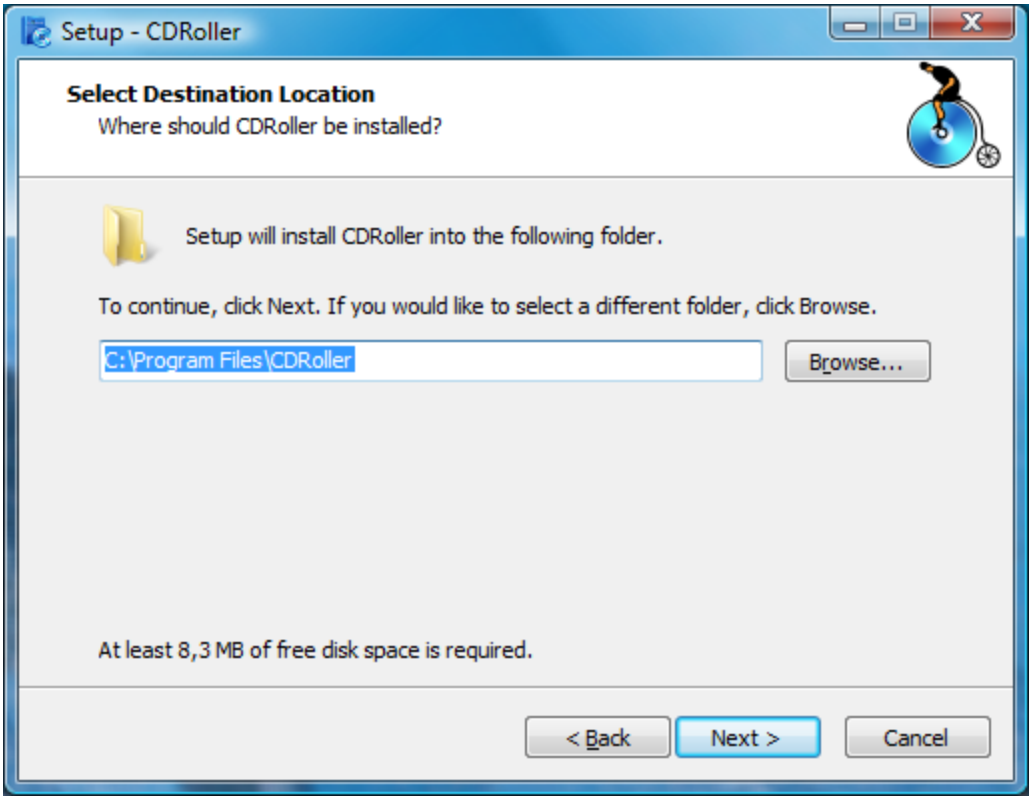
3. The installation program displays a **Destination Location** page similar to the one shown here.


Setup - CDRoller
Select Destination Location
Where should CDRoller be installed?
Setup will install CDRoller into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\CDRoller
Browse...
At least 8,3 MB of free disk space is required.
< Back
Next >
Cancel

CDRoller consists of a number of files containing the program and help information. It is recommended that you accept the default folder structure provided in the installation program. When you're satisfied with the installation folder specification, click the **Next** button.

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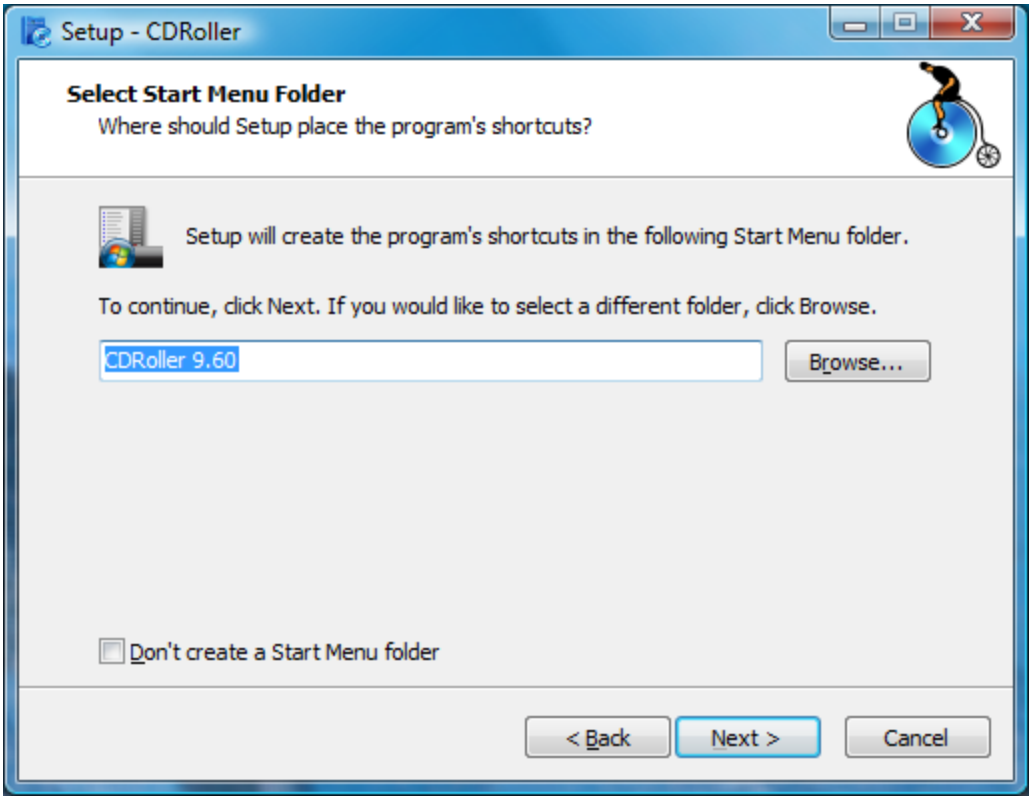
4. The installation program displays a **Select Start Menu Folder** page similar to the one shown here.


Setup - CDRoller
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
CDRoller 9.60
Browse...
Don't create a Start Menu folder
< Back
Next >
Cancel

By default, the installation program creates an **CDRoller** folder on your start menu. This is what you'll see when you choose Start | Programs on the Windows taskbar. If you want to use an existing folder, choose it from the list shown; if you want to use a different name, type it in the text field. When you're satisfied with your start menu folder selection, click the **Next** button.

5. The installation program displays a **Select Additional Tasks** page similar to the one shown here.

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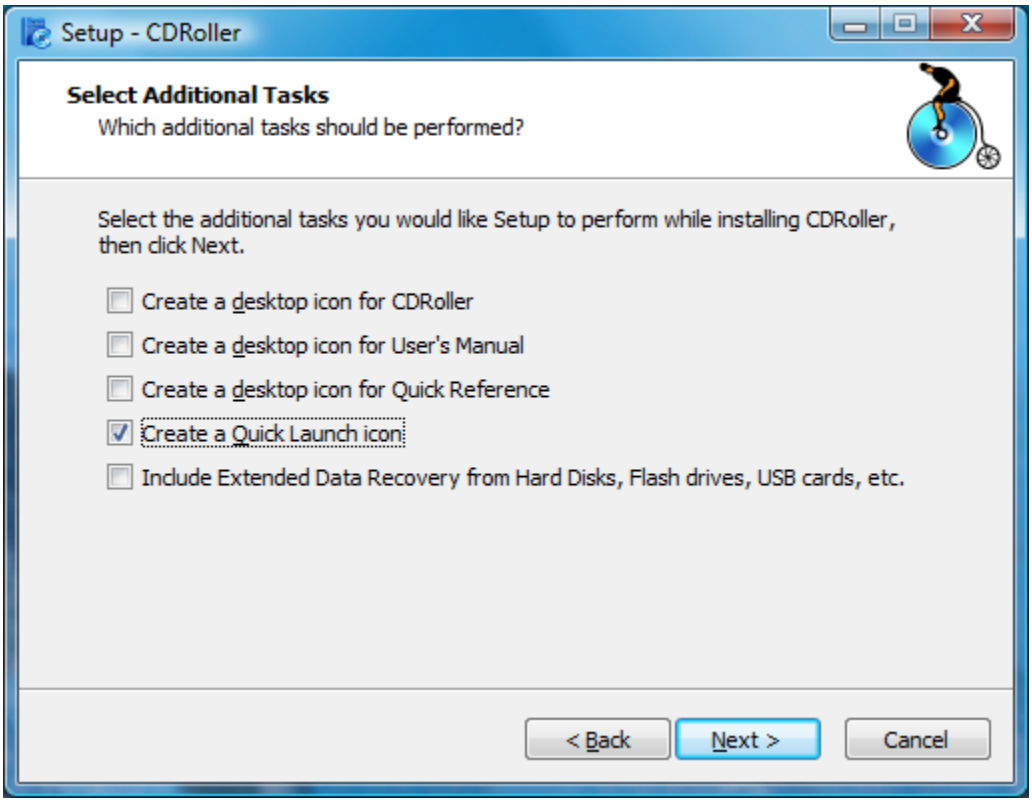
Setup - CDRoller
Select Additional Tasks
Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing CDRoller, then click Next.
Create a desktop icon for CDRoller
Create a desktop icon for User's Manual
Create a desktop icon for Quick Reference
Create a Quick Launch icon
Include Extended Data Recovery from Hard Disks, Flash drives, USB cards, etc.
< Back
Next >
Cancel

If you work with CDRoller the first time, we recommend you to read the **Quick References** before start of the program.

The checked **Include Extended Data Recovery ...** will popup User Account Control under Windows Vista/7/8 if you don't run CDRoller as admin by default.

6. The installation program displays a **Ready To Install** page similar to the one shown here.

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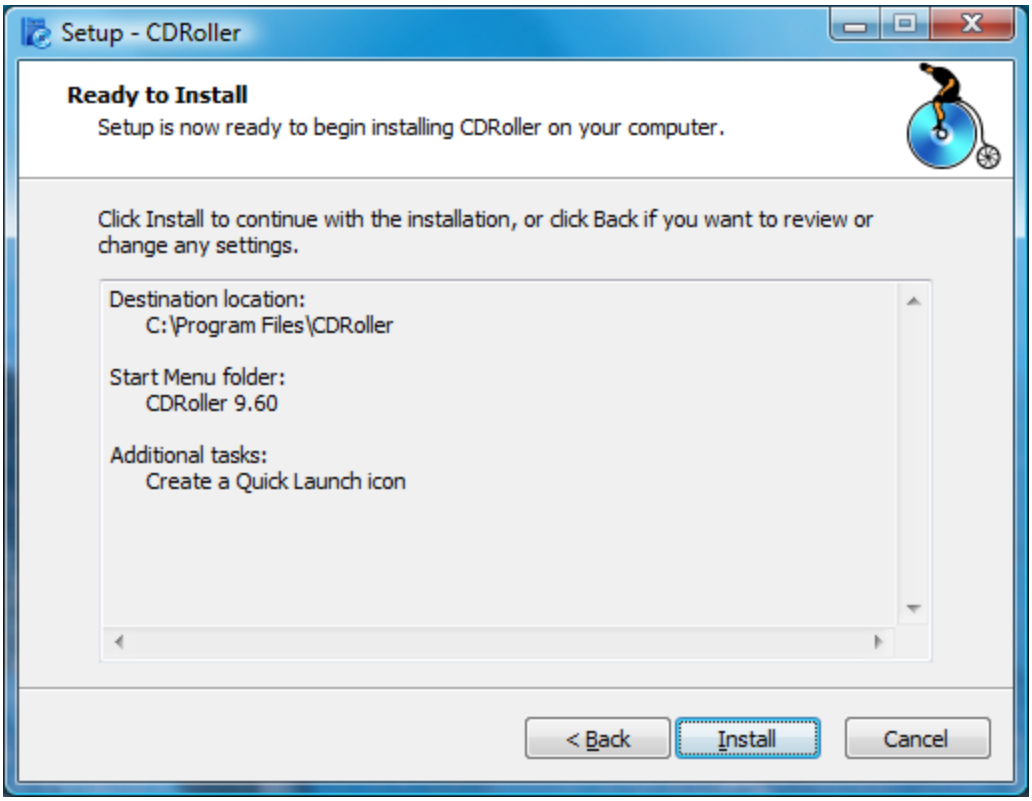
Setup - CDRoller
Ready to Install
Setup is now ready to begin installing CDRoller on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Program Files\CDRoller
Start Menu folder:
CDRoller 9.60
Additional tasks:
Create a Quick Launch icon
< Back
Install
Cancel

You've made all the choices necessary to begin installation. Click the **Install** button to begin installing CDRoller.

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7. After the copying of files to your computer has been completed, the installation program displays a **Finish** page similar to the one shown here.

Setup - CDRoller
Completing the CDRoller Setup Wizard
Setup has finished installing CDRoller on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Launch CDRoller
Finish

Click the **Finish** button. Installation of CDRoller is complete.

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2. Uninstalling CDRoller.

To uninstall CDRoller you can either:

- Use the menu selection created for this purpose.
- Select the Add/Remove Programs applet from the Windows Control Panel.

CDRoller does not install any system DLLs and does not modify Windows in any manner. Uninstalling this program will not affect other applications. To uninstall CDRoller, click the **Start** button on the Windows Taskbar, then choose **Programs** | **CDRoller** | **Uninstall CDRoller**.

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3. Opening and Closing CDRoller.

Opening CDRoller.
To open the program, click the **Start** button on the Windows Taskbar, then choose **Programs** | **CDRoller** | **CDRoller**.

Closing CDRoller.
Close CDRoller as you would any other Windows application by using the **File** | **Exit** menu item or **Alt+F4** keyboard shortcut.

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4. How to register the program.

Unregistered version of CDRoller analyzes the inserted disc, finds the lost files and tests their readability, but it cannot save the found data to the destination drive (folder). To enable the full functionality, you are required to license and pay the license fee. Once your order has been approved, a personal license key will be sent to you via e-mail to register your trial copy of CDRoller.

You can always order CDRoller using credit cards or another methods of payments if you visit web page at http://www.cdroller.com/htm/purchase.html.

To register the program:
1. Run CDRoller (trial version).
2. Select **Help** | **Register** option in the Main Menu.
3. Enter your personal license key.
4. Click **Accept** button.

Note. You don't need to restart the program. Your registration takes effect immediately.

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5. How to upgrade CDRoller.

To upgrade CDRoller:
1. Uninstall an old version of the program.
2. Download a trial copy of CDRoller at http://www.cdroller.com/htm/download.html and install it.
3. Register a trial copy with the help of your licence key.

Note. To upgrade your previous version of CDRoller (4, 5, 6, 7, 8 or 9) to CDRoller 10 **with 30% discount**, you should contact our Sales Dept at sales@cdroller.com. Please send us your personal license key, or the name and and e-mail address that you used when purchasing the software, or any other info (your order ID, post address, etc.) that may help us to identify your purchase status. Your request will be responded shortly, usually within 2 to 12 hours.

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6. Recovering CD/DVD/BD Data.

Overview.

The process of CD/DVD/BD data recovery is not easy and, unfortunately, it's very hard to create a "magic" tool can retrieve all data in all cases on all discs. In this section, we will try to give you a base recommendations how to achieve a positive result quickly and with a high reliability. Also, you can always receive a technical support at support@cdroller.com, all your questions regarding the problems with CD/DVD/BD data recovery will be responded within 2 to 24 hours.

We consider the following steps can be high-lighted:
1. Disk recognition.
2. Using Session Selector to access to all sessions on multisession disk.
3. Searching the lost UDF files on CD-R/DVD-R/DVD+R disks
4. Applying Scan UDF Disc to search for the lost objects on all types of UDF disks.
5. Recovering files.

Note. The 2nd...4th steps may be skipped. This depends on the disk type determined at the 1st step.

Separately, we high-light the following problems:
- Recovering DVD video and photos
- Recovering files from UDF discs in ISO mode
- Retrieving the photos from mini discs created by Sony Mavica CD cameras
- Identifying Raw ISO Data
- Burning recovered data

6.1. Disk recognition.

Open CDRoller and insert the disk into the drive. The program must analyse your disc immediately after insertion. After the disk has been verified, the **Main Window** displayes it similar to the one shown here.

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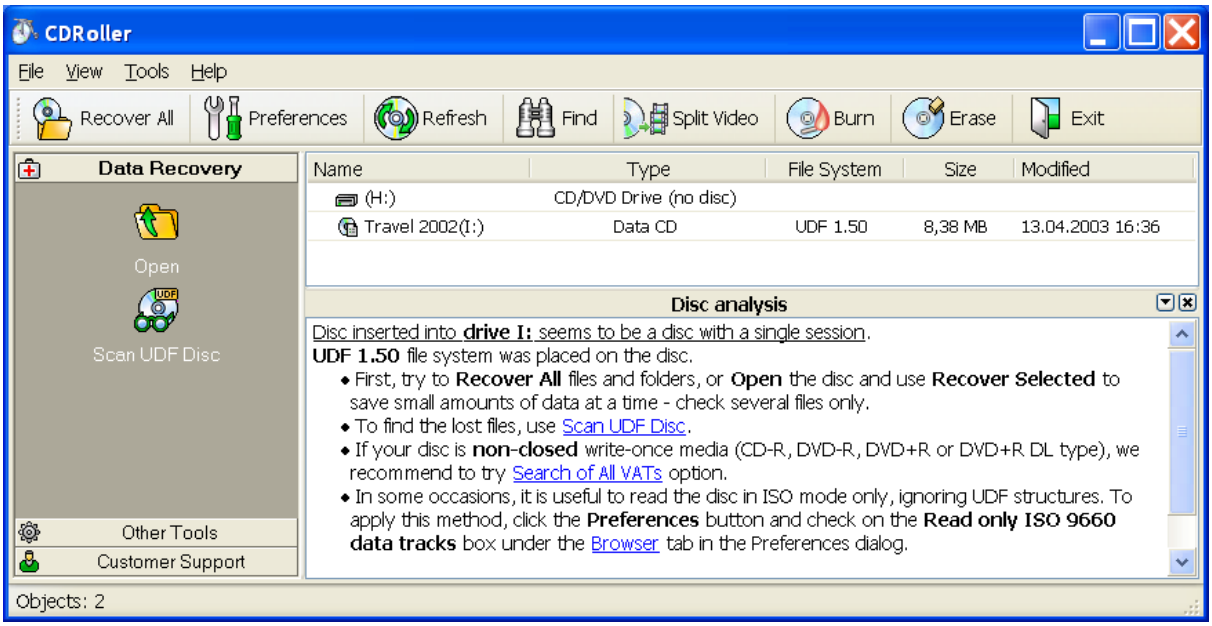
CDRoller
File View Tools Help
Recover All
Preferences
Refresh
Find
Split Video
Burn
Erase
Exit
Data Recovery
Open
Scan UDF Disc
Other Tools
Customer Support
Name
Type
File System
Size
Modified
(H:)
CD/DVD Drive (no disc)
Travel 2002(I:)
Data CD
UDF 1.50
8,38 MB
13.04.2003 16:36
Disc analysis
Disc inserted into drive I: seems to be a disc with a single session.
UDF 1.50 file system was placed on the disc.
First, try to Recover All files and folders, or Open the disc and use Recover Selected to save small amounts of data at a time - check several files only.
To find the lost files, use Scan UDF Disc.
If your disc is non-closed write-once media (CD-R, DVD-R, DVD+R or DVD+R DL type), we recommend to try Search of All VATs option.
In some occasions, it is useful to read the disc in ISO mode only, ignoring UDF structures. To apply this method, click the Preferences button and check on the Read only ISO 9660 data tracks box under the Browser tab in the Preferences dialog.
Objects: 2

Look at the **File System** column. This may give us an important info about the type of the disk. In the picture shown above, this is a disk in which **UDF** file system has been placed onto a single session. We will name the disk has **one or more** such sessions as "**UDF disk**". If **all** sessions are displayed with "ISO/Joliet" in the **File System** column, we will name such disk as "**ISO disk**", i.e the disk with ISO 9660 file system.

At first, click the **Recover All** button in the Toolbar in order to retrieve all files and folders off the disc or selected (current) session. Also, check out a readability of the root directory (folder), just left double click on the disk name, or use the **Open** command from the Side Bar. Please answer to the following questions: Is the root folder readable or not? Can i browse the disk contents? The answers may be applicable at the next stages of cd/dvd data recovery.

Troubleshootings.
1. If the program can not recognize your disk automatically, click the **Refresh** button in the Tool Bar, or insert the disk first and then open CDRoller. Also, to read the unclosed disks, i.e the disks left "as-is" by CD/DVD/BD mastering program we recommend you to use the following method:

- Uncheck **Detect disc insertion by Windows** under the Browser tab in the Preferences dialog and wait for the end of disk reading processed by another CD related program.
- Select the **Refresh** command from the **File** menu, or click the **Refresh** button in the Tool Bar.

2. To read **UDF** disks we recommend you to use CD-RW (DVD-) drives - the disks are recorded with so-called packet-written technology and old CD-ROM / DVD-ROM drives may not access to their data.

3. Some drives may not support our special methods. These devices may hang the program when analyzing the disk. In this case, uncheck **Always use a drive capabilities** under the Browser tab in the Preferences dialog, insert the disk and try to recognize it again.

4. If you get **'Unknown file system...'** message and you're sure the files data were placed on the disc, please try to scan your disc without using the file system structures:
- If your DVD has been created by DVD camcorder or standalone recorder, please use the Recover DVD Video option.
- If you know **ISO/Joliet** file system was actually placed on the disc, try the Identify Raw ISO Data command.
- In case of **UDF** disc, if you know a name of CD/DVD/BD mastering program (or standalone device), which actually created your disc, try the **forced scan**, selecting the software or device profile in the

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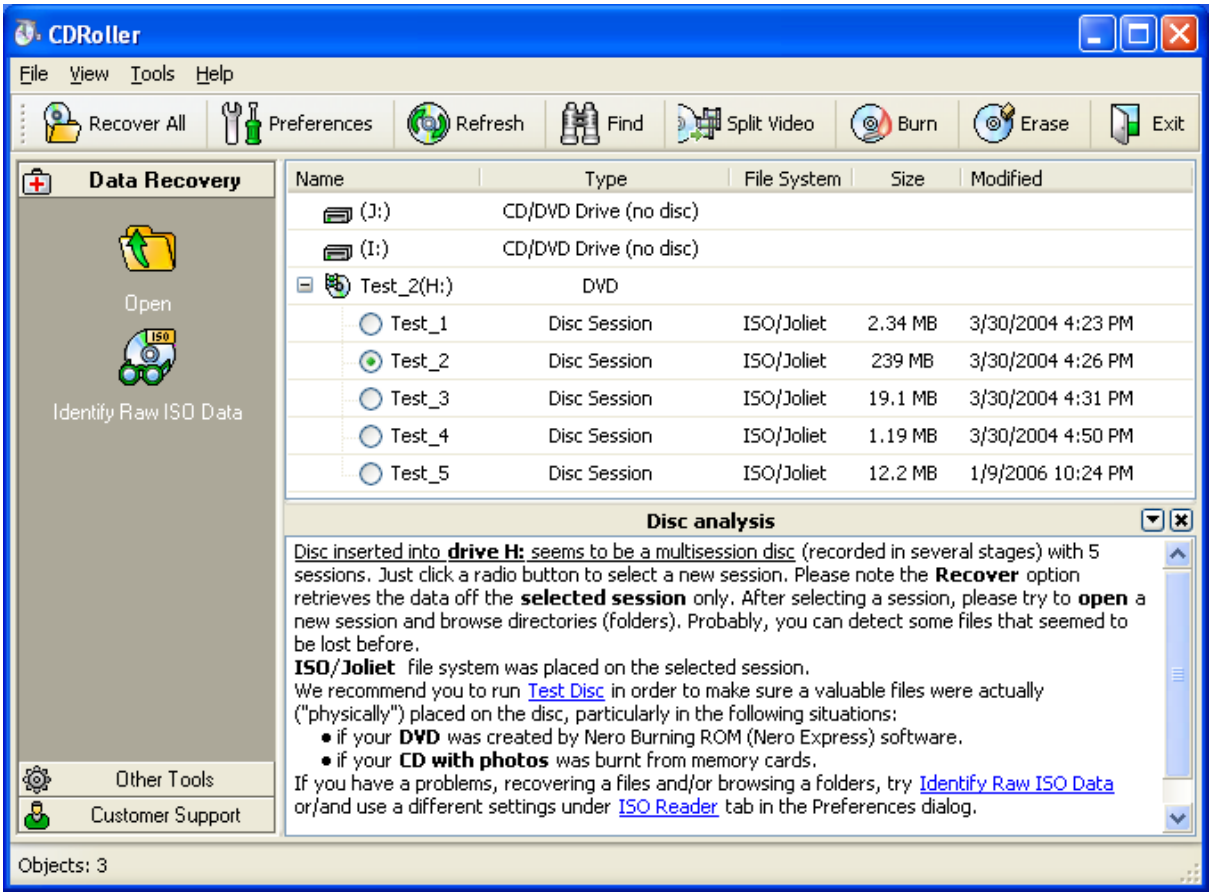
forced scan list under the UDF Reader tab in the Preferences dialog.

6.2. Using Session Selector.

We often receive the emails similar to the following one:
"*I have copied back up files to a CDR in several stages, but the last time I backed up, I was only able to see the most recent batch of files. The others seem to have disappeared... I presume they are still there on the CD but "hidden" in some way - may be a different volume ?*"

Fortunately, CDRoller offers the tool named as "**Session Selector**" to access to the data placed into different sessions (volumes) on your CD or DVD. These disks are known as **multisession CD/DVDs**. By default, CDRoller displayes contents of the most recent session.


CDRoller
File View Tools Help
Recover All
Preferences
Refresh
Find
Split Video
Burn
Erase
Exit
Data Recovery
Open
Identify Raw ISO Data
Other Tools
Customer Support
Name
Type
File System
Size
Modified
(J:) CD/DVD Drive (no disc)
(I:) CD/DVD Drive (no disc)
Test_2(H:) DVD
Test_1 Disc Session ISO/Joliet 2.34 MB 3/30/2004 4:23 PM
Test_2 Disc Session ISO/Joliet 239 MB 3/30/2004 4:26 PM
Test_3 Disc Session ISO/Joliet 19.1 MB 3/30/2004 4:31 PM
Test_4 Disc Session ISO/Joliet 1.19 MB 3/30/2004 4:50 PM
Test_5 Disc Session ISO/Joliet 12.2 MB 1/9/2006 10:24 PM
Disc analysis
Disc inserted into drive H: seems to be a multisession disc (recorded in several stages) with 5 sessions. Just click a radio button to select a new session. Please note the Recover option retrieves the data off the selected session only. After selecting a session, please try to open a new session and browse directories (folders). Probably, you can detect some files that seemed to be lost before.
ISO/Joliet file system was placed on the selected session.
We recommend you to run Test Disc in order to make sure a valuable files were actually ("physically") placed on the disc, particularly in the following situations:
• if your DVD was created by Nero Burning ROM (Nero Express) software.
• if your CD with photos was burnt from memory cards.
If you have a problems, recovering a files and/or browsing a folders, try Identify Raw ISO Data or/and use a different settings under ISO Reader tab in the Preferences dialog.
Objects: 3

To select a new session, just click a new item with '*Disc Session*' type in the main program window. Then, try to apply the **Recover All** command, or simply **Open** a new session. Probably, you will detect a new files that have been "hidden" before.

Note. **Recover All** retrieves all files from the selected (current) session only.

Hint.
Sessions Selector may be also extremely useful if the root folder of the last session seems to be unreadable at the "**Disk recognition**" stage, but some important files may be located (duplicated) in

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the previous session(s).

6.3. Searching the lost UDF files on CD-R/DVD-R/DVD+R disks.

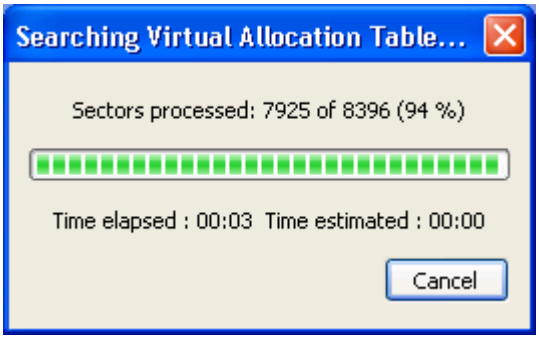
A correct reading of UDF files and folders on write-once media (CD-R/DVD-R/DVD+R/DVD+R DL) is provided by Virtual Allocation Table (VAT). Each time, when you add, change or delete files on the disc, UDF mastering program creates a new VAT that reflects a new state of your disk. A new VAT is being placed on the disk physically, when you eject the disk from your computer drive. VAT's location is crucial for the disks created with the help of drag & drop software, such as well-known Roxio (Adaptec) DirectCD and Drag-To-Disc. If the VAT can not be found or is corrupted, files will be missing.

If your CD-R/DVD-R/DVD+R/DVD+R DL is recognized as UDF one, but when you try to open the disk, you get the error message about **unreadable root folder** - this means the last VAT is not found. Also, if you have **accidently deleted** some files, a new VAT does not point to them. To recover the deleted files, you should use the previous VATs.

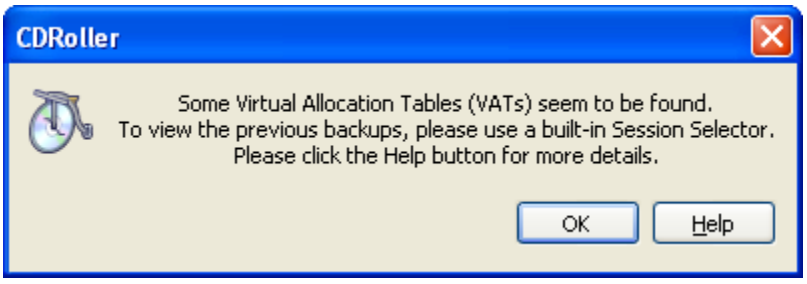
There are two main ways to find the lost files:
1. Using Scan UDF Disc from the Tools menu.
2. Searching an old VATs in order to recover the files from the previous backups.

The first method is described in the section 6.4. To search all VATs, please do the following:

- Click the Preferences button in the Tool Bar or select the same option from the View menu. Check on the 'Search of all VATs' box on the UDF Reader tab in the Preferences dialog. Click the OK button to close the Preferences.
- Click the Refresh button in the Tool Bar. After a while the program will display a progress dialog similar to the one shown here:



- when the process is completed, you should see the confirmation message:


CDRoller
Some Virtual Allocation Tables (VATs) seem to be found.
To view the previous backups, please use a built-in Session Selector.
Please click the Help button for more details.
OK
Help

- Click the OK button. Now, an each backup is shown as a **separate "session"** in the program window. When you will see a new disk image (icon) in the program window, please use built-in

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Session Selector (see the section 6.2) for access to all backups.

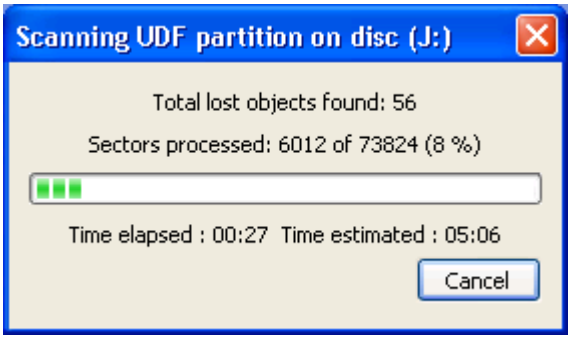
Note. Please do not search all VATs on the following disks:
- CD-RW/DVD-RW/DVD+RW (CD/DVD re-writable media),
- DVD-R and DVD+R created by DVD personal recorder (standalone device) and DVD camcorder.
These disks do not contain VAT at all.

6.4. Applying Scan UDF Disc.

In addition to another methods of CD/DVD/BD data recovery, **Scan UDF Disc** gives you a good chance to retrieve several types of files, including:

- Files are not visible in Windows Explorer - the **writing process was interrupted by a system or power failure** before UDF folders were placed on the disc, but most or all of the files were written to the disk. This means that the files may be on the CD (DVD, BD), but Windows Explorer cannot see them.
- Lost files - complete files that do not have a file name associated with them. They can also be files that you **accidently deleted** from the CD (DVD, BD).
- Files on the disks **quick-formatted** by Roxio DirectCD and Nero InCD.
- Files located in **unreadable** (damaged) **UDF folders**, including the root one.
- Files located on **Sony Mavica CD** finalized with failure on the camera. Forced scan is recommended.
- M2TS files on the discs that were not finalized by AVCHD camcorders. Forced scan is recommended.

To start **Scan UDF Disc** select the same option in the **Tools** menu or in the **Side Bar**. The program displays a progress dialog similar to the one shown here.


Scanning UDF partition on disc (J:)
Total lost objects found: 56
Sectors processed: 6012 of 73824 (8 %)
Time elapsed : 00:27 Time estimated : 05:06
Cancel

After UDF scan is completed or canceled, found files and/or folders are displayed in the **Lost objects detected on disc...** window similar to the one shown here

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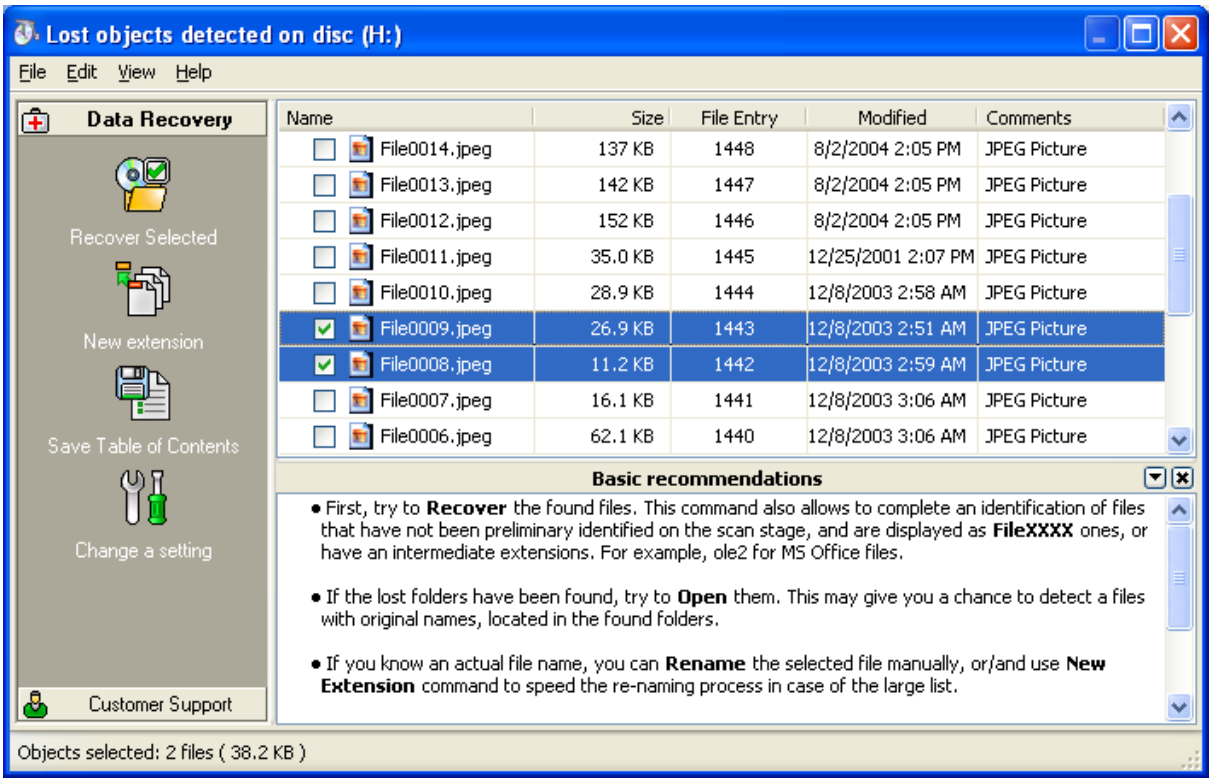
Lost objects detected on disc (H:)
File Edit View Help
Data Recovery
Recover Selected
New extension
Save Table of Contents
Change a setting
Customer Support
Name Size File Entry Modified Comments
File0014.jpeg 137 KB 1448 8/2/2004 2:05 PM JPEG Picture
File0013.jpeg 142 KB 1447 8/2/2004 2:05 PM JPEG Picture
File0012.jpeg 152 KB 1446 8/2/2004 2:05 PM JPEG Picture
File0011.jpeg 35.0 KB 1445 12/25/2001 2:07 PM JPEG Picture
File0010.jpeg 28.9 KB 1444 12/8/2003 2:58 AM JPEG Picture
File0009.jpeg 26.9 KB 1443 12/8/2003 2:51 AM JPEG Picture
File0008.jpeg 11.2 KB 1442 12/8/2003 2:59 AM JPEG Picture
File0007.jpeg 16.1 KB 1441 12/8/2003 3:06 AM JPEG Picture
File0006.jpeg 62.1 KB 1440 12/8/2003 3:06 AM JPEG Picture
Basic recommendations
• First, try to Recover the found files. This command also allows to complete an identification of files that have not been preliminary identified on the scan stage, and are displayed as FileXXXX ones, or have an intermediate extensions. For example, ole2 for MS Office files.
• If the lost folders have been found, try to Open them. This may give you a chance to detect a files with original names, located in the found folders.
• If you know an actual file name, you can Rename the selected file manually, or/and use New Extension command to speed the re-naming process in case of the large list.
Objects selected: 2 files (38.2 KB)

You can rename the selected folders, open them with the help of **Open** command, or left double clicking on their names. If the lost folders have been found, try to open them first. This may give you a chance to recover the files with original names that are located in the found folders.

When applying the **Recover All / Recover Selected** commands, the program automatically identifies the types of files, initially shown as FileXXXX ones, or the files having an intermediate extensions, such as .ole2 for MS Office ones.

If you know an original type, you can rename the selected files manually, with the help of **Rename** command, or/and use **New Extension** option to speed up the re-naming process in case of the large list.

Hints and Tips.
If you're going to retrieve UDF files from the same disc at the different times, you can save the table of contents (names,locations, attributes) of the found files into separate file by **Save Table Of Contents** command from the **File** menu. Further, check on the **Load Table Of Contents from file box** on the **UDF Reader** tab in the **Preferences** dialog. Next time, when you will run **Scan UDF Disc** the program will display the list of the found objects shortly, without scanning the disc, and you can continue to retrieve the files data.

Trouble Shooting.
If the program can not recognize UDF disk, but you are certainly sure the disk contains the files, we recommend you to try the **forced scan** of the disk. This may be useful if the disk was incorrectly finalized, and the system data are not accessible. For example, this problem often occures on **Sony Mavica CD** when the finalization step failed on the camera.

To start the forced scan, you should initially know what CD/DVD mastering program (or device) formatted your disk. For example: Roxio (Adaptec) DirectCD, Nero InCD, PacketCD or Sony Mavica CD digital camera. Further, you should assign an appropriate profile in the **Forced scan** list under the UDF Reader tab in the Preferences dialog and click the **Refresh** button in the Tool Bar.

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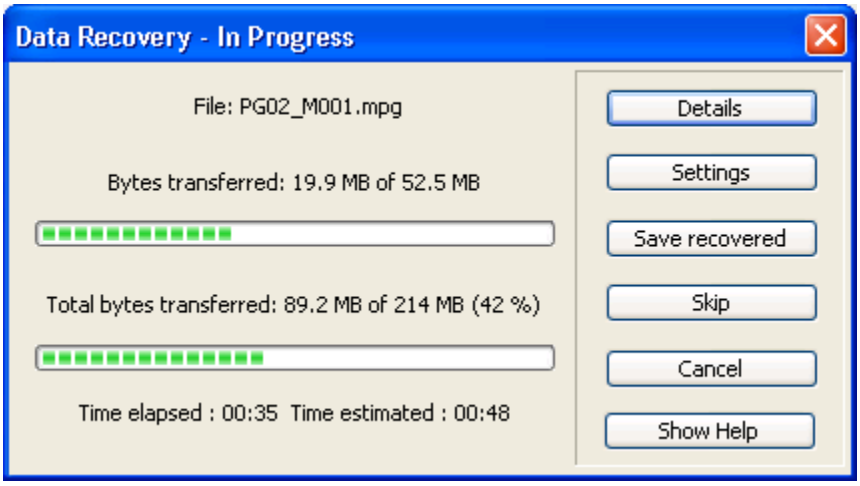
Note.
Obviously, there is no 100% guarantee to recover all displayed files completely, please keep in mind, that some files may be erased or partially re-written by a new ones. The program can restore those FILES DATA, which else it is possible to rescue.

6.5. Recovering files.

To recover the found files and folders, you can use **Recover All** and **Recover Selected** options, or simply drag and drop selected items to the destination you have chosen on your HDD.

When selecting **Recover All** / **Recover Selected** options, the program displays a **Data Recovery dialog** similar to the one shown here.



Key Features.
- **Saves recovered** data into intermediate file. Further, a recovery of the selected file can be continued with the help of **Resume Recovery** option in the program window.
- Displays the current results (recovery **details**).
- **Saves** recovery results (report) into HTML file.
- Changes a recovery **settings**, without leaving the process.
- **Skips** file during the recovery process, if you decide a file isn't so important.

If UDF file consists of the different fragments (so called "extents"), you have the opportuntiny to recover each extent separately. Right click the file and select Properties command from the next (pop-up) menu. Go to the **UDF Records** tab in the Properties dialog.

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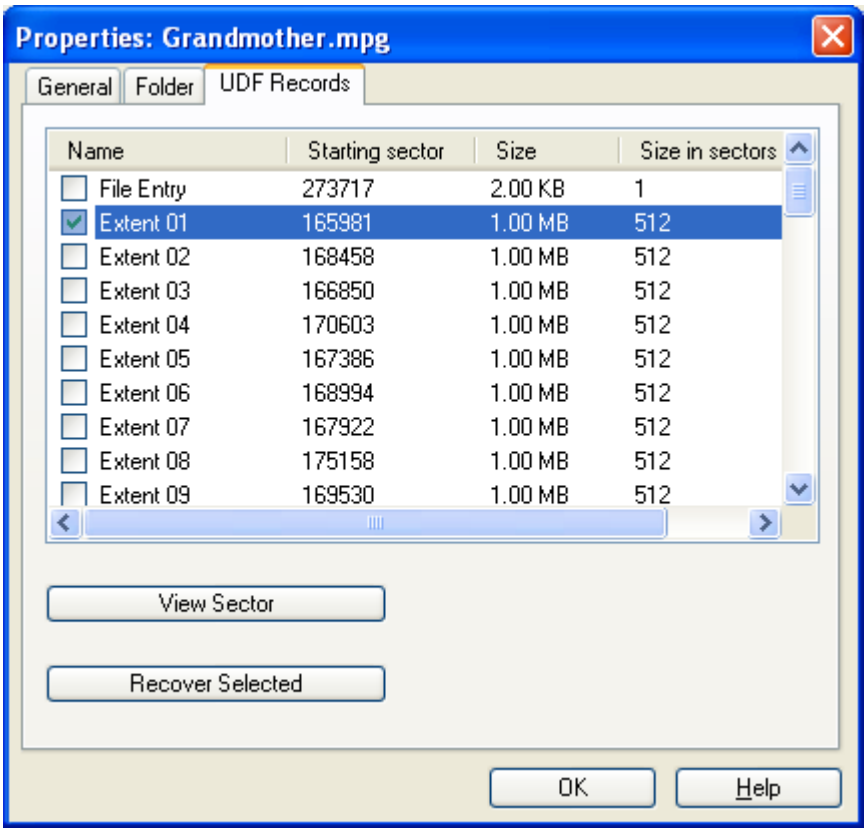

Select the file extent and click **Recover Selected** button. After the process is completed, just rename the recovered .dat file to the file with required extension. For example, simply assign .vro, .vob or .mpg extension for video file. A small advice. To change a file's extension in the Windows Explorer, simply right click the file and select **Rename** in the next (pop-up) menu.

6.6. Recovering DVD video and photos.

6.6.1. Hardware requirements.

- We strongly recommend to use DVD-RW drives ("dvd writers"). DVD-ROM drives ("dvd readers") often can not access to the "troubled" or non-finalized DVD discs.
- To read DVD-RAM discs, you should use the computer DVD-RAM drive instead of DVD-RW or DVD-ROM device. Or, you can use so-called multi-read DVD-RW drive with capabilities to read DVD-RAMs. If you need our advice regarding a vendor or/and model of a new computer DVD drive, just contact us at support@cdroller.com .

6.6.2. Searching and recovering the lost data.

CDRoller Wizard interface is designed for novice users and allows to recover DVD videos and photos off the discs, created by standalone devices (camcorders, personal DVD recorders), using the simple "step by step" procedure. To display the Wizard dialog, just select the **Recover DVD Video** option from the File Menu.

Every Wizard dialog contains a brief instructions, describing a possible user actions in order to achieve the best results in DVD data recovery.

At the 1st step, please select your computer DVD drive.

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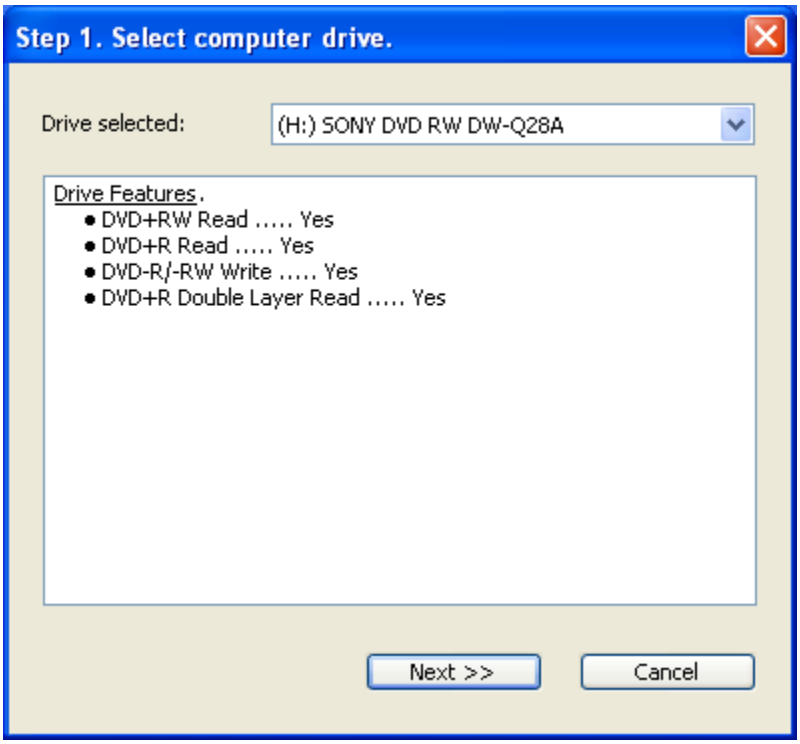
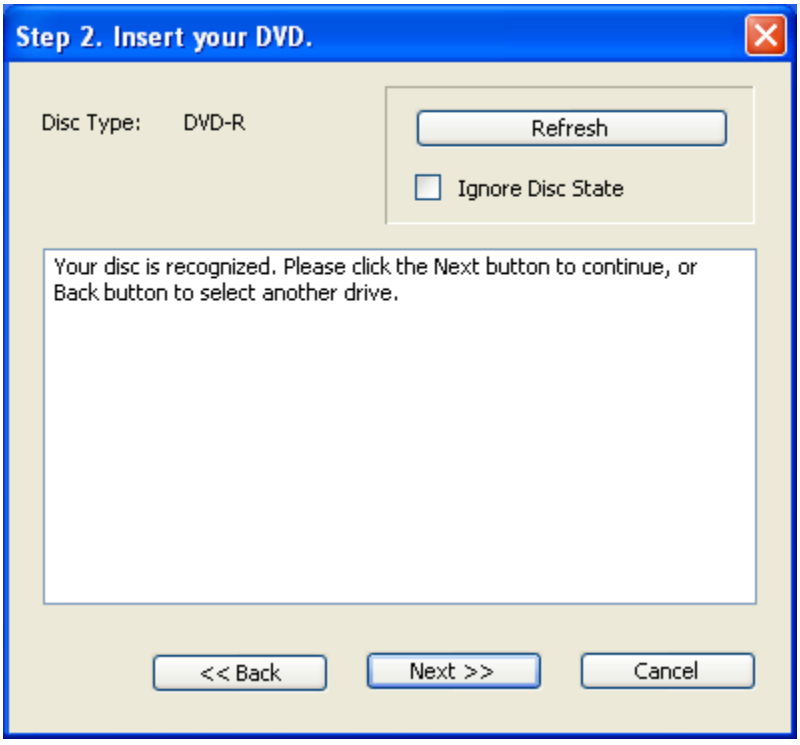


At the 2nd step, just insert your DVD and click the **Next** button.


Step 2. Insert your DVD.
Disc Type: DVD-R
Refresh
Ignore Disc State
Your disc is recognized. Please click the Next button to continue, or Back button to select another drive.
<< Back
Next >>
Cancel

At the 3rd step, please select DVD video recorder (camcorder or standalone dvd recorder) that placed a video or/and photos on your disc. You can use **Any recorder** setting and try to scan each of displayed tracks, starting on the track with the **highest length**.

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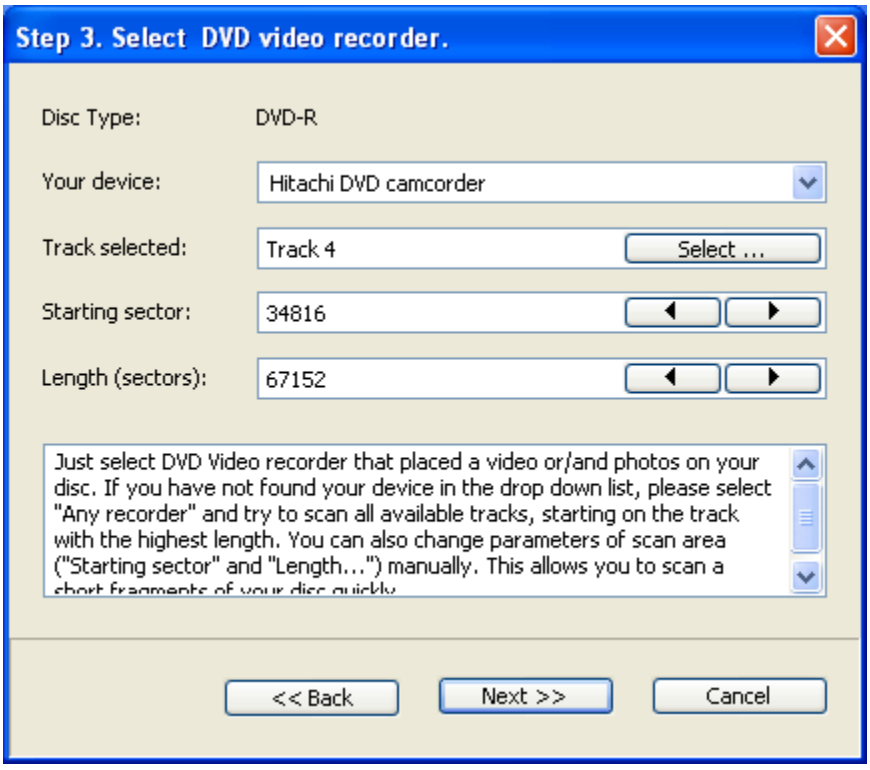
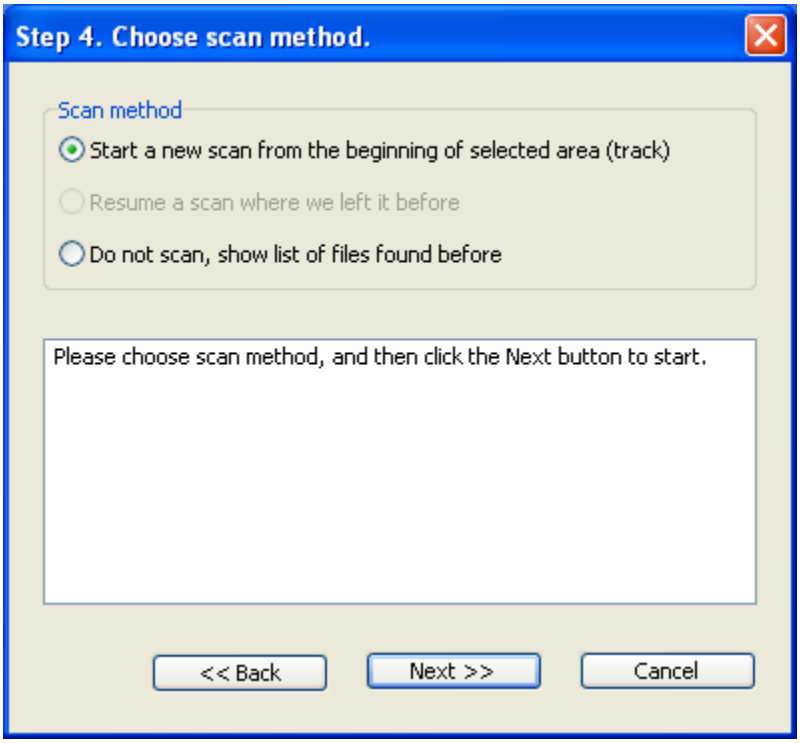

Step 3. Select DVD video recorder.
Disc Type:
DVD-R
Your device:
Hitachi DVD camcorder
Track selected:
Track 4
Select ...
Starting sector:
34816
Length (sectors):
67152
Just select DVD Video recorder that placed a video or/and photos on your disc. If you have not found your device in the drop down list, please select "Any recorder" and try to scan all available tracks, starting on the track with the highest length. You can also change parameters of scan area ("Starting sector" and "Length...") manually. This allows you to scan a
<< Back
Next >>
Cancel

At the 4th step, just click the Next button if you scan the selected area for the first time.


Step 4. Choose scan method.
Scan method
Start a new scan from the beginning of selected area (track)
Resume a scan where we left it before
Do not scan, show list of files found before
Please choose scan method, and then click the Next button to start.
<< Back
Next >>
Cancel

At the next step, you should see a dialog similar to the one shown here.

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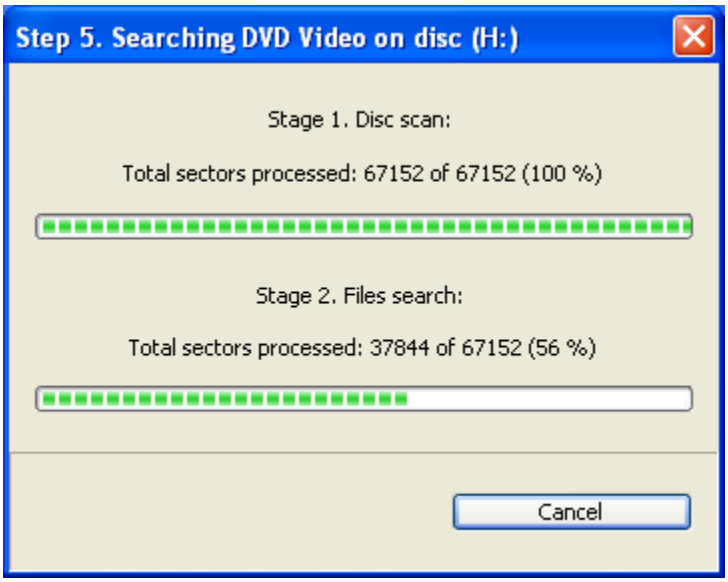
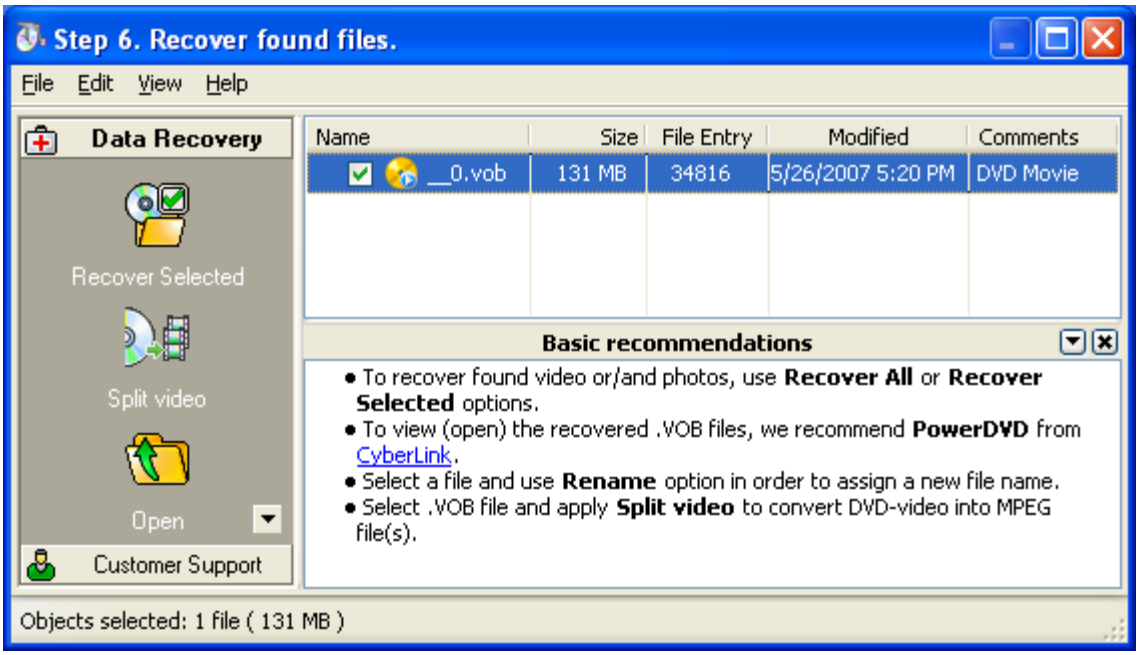

Step 5. Searching DVD Video on disc (H:)
Stage 1. Disc scan:
Total sectors processed: 67152 of 67152 (100 %)
Stage 2. Files search:
Total sectors processed: 37844 of 67152 (56 %)
Cancel

Finally, just recover the found video (VOB files). You can also try to scan another track, shown at the 3rd step.


Step 6. Recover found files.
File Edit View Help
Data Recovery
Recover Selected
Split video
Open
Customer Support
Name Size File Entry Modified Comments
__0.vob 131 MB 34816 5/26/2007 5:20 PM DVD Movie
Basic recommendations
• To recover found video or/and photos, use Recover All or Recover Selected options.
• To view (open) the recovered .VOB files, we recommend PowerDVD from CyberLink.
• Select a file and use Rename option in order to assign a new file name.
• Select .VOB file and apply Split video to convert DVD-video into MPEG file(s).
Objects selected: 1 file (131 MB)

Note. If your mini **DVD+RW was re-formatted** by camcorder, an additional test is required in order to determine whether the lost video is now accessible or not. For inquiry, please contact us at support@cdroller.com

6.6.3 Using UDF Reader.

6.6.3.1 Recovering VRO files.

You can usually see these video files on the DVD with UDF 2.0 file system. When your dvd recorder or camera writes a video according to DVD-VR standard. If you see **UDF 2.0** under **File System** column in the CDRoller window, try to browse the disc folders, find and recover VRO file directly. Please keep

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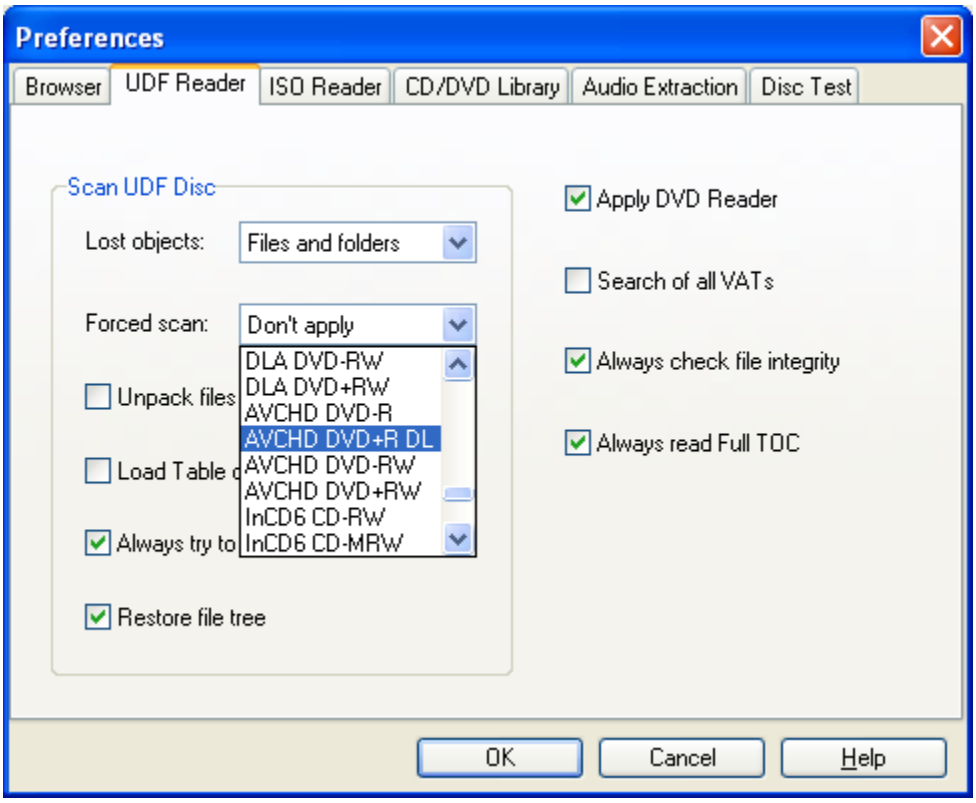
in mind VRO files are often fragmented. If one fragment is seriously damaged or incorrectly recorded by the camera, this can stop all recovery process. A solution is to recover each fragment of video (file extent) separately. Details ...

6.6.3.2 Recovering AVCHD video.

- Can be recommended to find .m2ts files (UDF files) on the non-finalized discs created by **AVCHD camcorders**.
- Select the Preferences option from the View menu. Uncheck the **Detect disc insertion by Windows** and **Always use a drive capabilities** boxes under the Browser tab in the Preferences dialog before you will insert the troubled disc into the drive.
- Insert the "troubled" disc into the drive.
- Click the Preferences option from the View menu again. Select an appropriate option (that depends on model of your device and type of the "troubled" disc) in the **Forced Scan** list under the UDF Reader tab and click the OK button.



- The program will scan your disc, without using the system data. Further, please follow our **Basic Recommendations** from built-in adviser. Also, please feel free to contact us at support@cdroller.com if you have any questions regarding dvd video recovery.

6.6.4 Viewing VOB files.

To view the recovered VOB files, we recommend **PowerDVD** from CyberLink at http://www.gocyberlink.com/.

6.6.5 Converting VOBs into MPGs.

Our **Split video** option automatically converts a "raw" DVD-video data (VOB or VRO files) into MPG files without loss of quality. In contrast to VOB file, MPG file can be simply viewed with the help of any DVD-compatible software (player). To activate the Split video window, just click **Split Video** button in the Side Bar (a left panel of 'Step 6...' dialog mentioned above) and assign the recovered file name in the next dialog. Or, just click **Split Video** button in the Main ToolBar.

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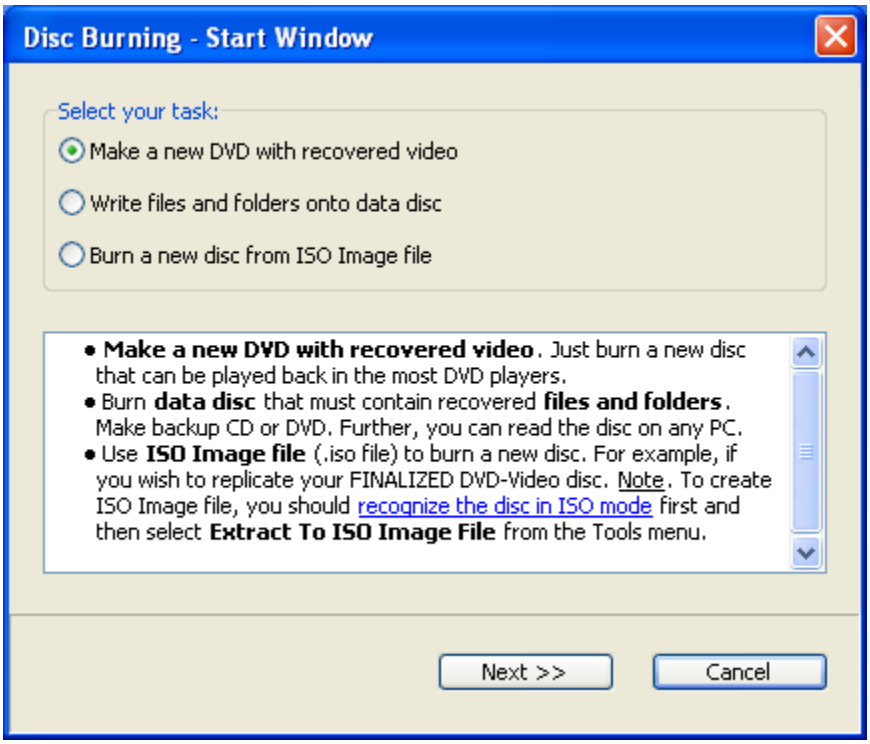
6.6.6. Making a new DVD with recovered video.

Just click **Burn** button in the Main ToolBar, select **Make a new DVD with recovered video** and click the Next button.


Disc Burning - Start Window
Select your task:
Make a new DVD with recovered video
Write files and folders onto data disc
Burn a new disc from ISO Image file
• Make a new DVD with recovered video. Just burn a new disc that can be played back in the most DVD players.
• Burn data disc that must contain recovered files and folders. Make backup CD or DVD. Further, you can read the disc on any PC.
• Use ISO Image file (.iso file) to burn a new disc. For example, if you wish to replicate your FINALIZED DVD-Video disc. Note. To create ISO Image file, you should recognize the disc in ISO mode first and then select Extract To ISO Image File from the Tools menu.
Next >>
Cancel

Further, using a simple "step by step" procedure, you select DVD burner (computer DVD drive), add a video (MPG files) into your compilation and, finally, burn a new DVD-video disc that can be played back in the most DVD players.

In addition, you can load the recovered MPG or VOB files into your DVD-authoring software, for example: Sony Picture Motion Browser, Windows Vista / 7 DVD Maker, Sonic MyDVD, Nero Vision, etc.

Note. To replicate successfully finalized DVD-video disc, you can extract ISO Image file first, and then burn it to a new (blank) DVD.

6.7. Recovering files from UDF discs in ISO mode.

Sometimes, CD/DVD/BD mastering software places ISO/Joliet file system on the UDF disc. If the disc contains both UDF and ISO 9660 file systems it shall be known as a UDF Bridge disc. This UDF Bridge disc will allow playing DVD-ROM media in computers which may only support ISO 9660. An example of UDF Bridge disc may be DVD-Video disc created for DVD players.

By default, CDRoller reads the contents of UDF partition, because this is an universal way to find and recover the lost data. However, UDF directories can become corrupted due to errors of CD/DVD/BD mastering software, bad quality of DVD media and some hardware problems. A solution can be to try to read the disc in ISO mode:

- Click the **Preferences** button in the Tool Bar and check the **Read only ISO 9660 tracks** box under the Browser tab in the Preferences dialog. Click the OK button to close the Preferences.

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- click the **Refresh** button in the Tool Bar. If your disc has ISO/Joliet partition, you should see ISO/Joliet in the File System column instead of UDF.

Note. If the disc contains a several sessions, please use the built-in Session Selector.

6.8. Retrieving the photos from mini discs created by Sony Mavica CD cameras.

6.8.1. General requirements and settings.

- CD-RW or DVD-RW drives (cd or dvd "writers") are more preferable in comparing with CD-ROM or DVD-ROM drives (cd or dvd "readers").
- You should uncheck the **Detect disc insertion by Windows** box under the Browser tab in the Preferences dialog before you will insert the troubled disc into the drive.

6.8.2. Reading mini disc that was finalized with failure on the camera.

Symptom.
The disc finalization was accidently interrupted, for example, due to the power failure.
Troubleshooting.

- Remove any disk(s) from your computer drive(s).
- Run CDRoller.
- Click the **Preferences** button in the Tool Bar or select the same option from the View menu. Make sure that the **Detect disc insertion by Windows** is UNCHECKED on the Browser tab in the Preferences dialog. Click the OK button to close the Preferences.
- Insert the troubled disc.
- Click the Refresh button in the Tool Bar.
- Does the program recognize your disc? If not, please go to the step 6.8.3
- If you can see the disc icon in the program window, try to open the disc by left-double clicking its name. Do you get the message about unreadable root folder? If yes, try to run Scan UDF Disc from the Tools menu and go to the step 6.8.4 if the program has found the lost files.

6.8.3. Reading non-finalized (open) disc.

Symptom.
Disc was not finalized, you lost an access to the data due to **Disk Error**. You was able to view the photos earlier (prior to the disk error).
Troubleshooting.

- Remove any disk(s) from your computer drive(s).
- Run CDRoller.
- Click the **Preferences** button in the Tool Bar or select the same option from the View menu. Make sure that the **Detect disc insertion by Windows** box is UNCHECKED on the Browser tab in the Preferences dialog. Click the OK button to close the Preferences.
- Insert the troubled disc.
- Click the Preferences again. Select **Sony Mavica (O)** in the **Forced scan** list under the UDF reader tab. Click the OK button and close the Preferences again.
- Click the Refresh button in the Tool Bar. If dialog with **Step 1. Specify your scan area** caption appears, try to find and recover the lost photos step-by-step, using Wizard interface. Otherwise, the program tries to find the lost files, scanning "UDF partition". Are any files found? If yes, go to the step 6.8.4.
- Note. If some pictures look like corrupted, please try to repeat the "forced scan" with the help of **Sony Mavica CD**. Also, this option is recommended to find mavica videos (MPEG files).

6.8.4. Recovering the found (indexed) files displayed in the "Lost objects detected..." window.

- Apply **Recover All / Recover selected** to retrieve the found files (photos) automatically.
- Select file(s) and use **Rename** or/and **New Extension** commands to re-name the indexed files to

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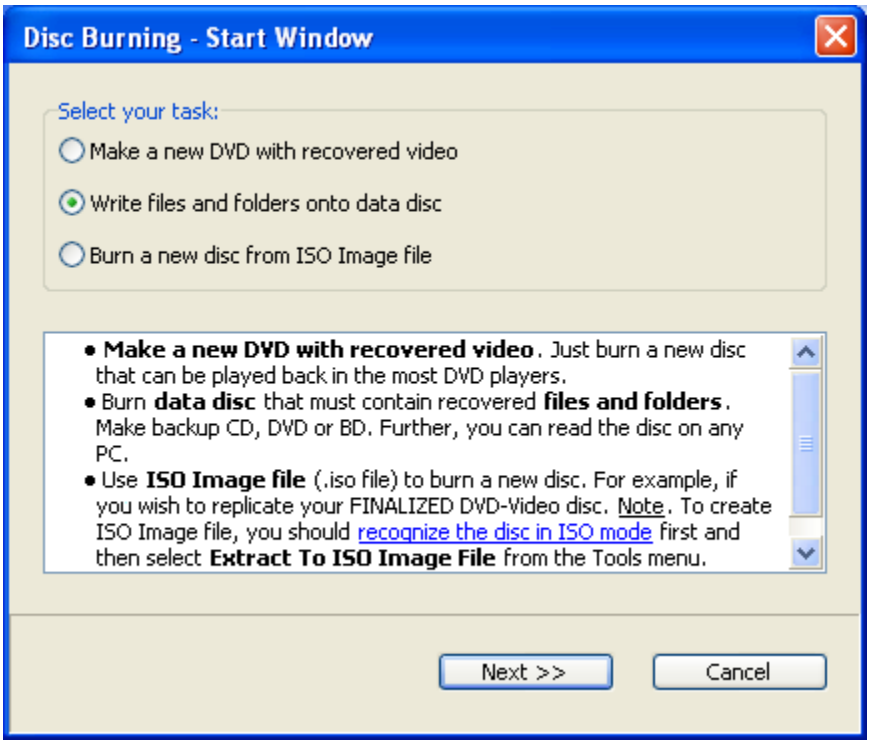
.jpg ones, and then copy them to HDD with the help of **Recover selected** or drag&drop operations.

6.8.5. Viewing found files.
To view the found photos (JPEG files), you can use View Image option. Just select a JPEG file and click the **View Image** in the Side Bar (left panel of the "Lost objects detected..." window).

6.8.6. Burning the recovered files.
To place the recovered photos onto new disc, click Burn button, select **Write files and folders onto data disc** in the Start Window and click the Next button.


Disc Burning - Start Window
Select your task:
Make a new DVD with recovered video
Write files and folders onto data disc
Burn a new disc from ISO Image file
• Make a new DVD with recovered video. Just burn a new disc that can be played back in the most DVD players.
• Burn data disc that must contain recovered files and folders. Make backup CD, DVD or BD. Further, you can read the disc on any PC.
• Use ISO Image file (.iso file) to burn a new disc. For example, if you wish to replicate your FINALIZED DVD-Video disc. Note. To create ISO Image file, you should recognize the disc in ISO mode first and then select Extract To ISO Image File from the Tools menu.
Next >>
Cancel

Further, using a simple "step by step" procedure, you can select a burner (computer drive), add the recovered files (photos) into your compilation and, finally, burn a new disc.

6.9. Identifying Raw ISO Data

In addition to another methods of CD/DVD/BD data recovery, **Raw ISO Data Identifier** gives you a good chance to find and retrieve the lost files from the troubled discs, created by Ahead Nero Burning ROM, Adaptec (Roxio) Easy Media Creator, Sonic software and other programs, including:
- Discs with currently **unreadable system area** (so-called Primary and Secondary ISO Volume Descriptors). When trying to recognize these discs the first time, CDRoller generates "*Unknown file system...*" error message.
- Discs with the **damaged and corrupted folders**.
- UDF Discs having **ISO-alike files locations**.

Note. Please use this option only if another methods of CD/DVD/BD data recovery have not given an effect before.

To start Raw ISO Data Identifier, please select the **Identify Raw ISO Data** option from the **Tools** menu, or **Side Bar**. At the final stage, the found files are displayed in the **Step3. Recover found files**

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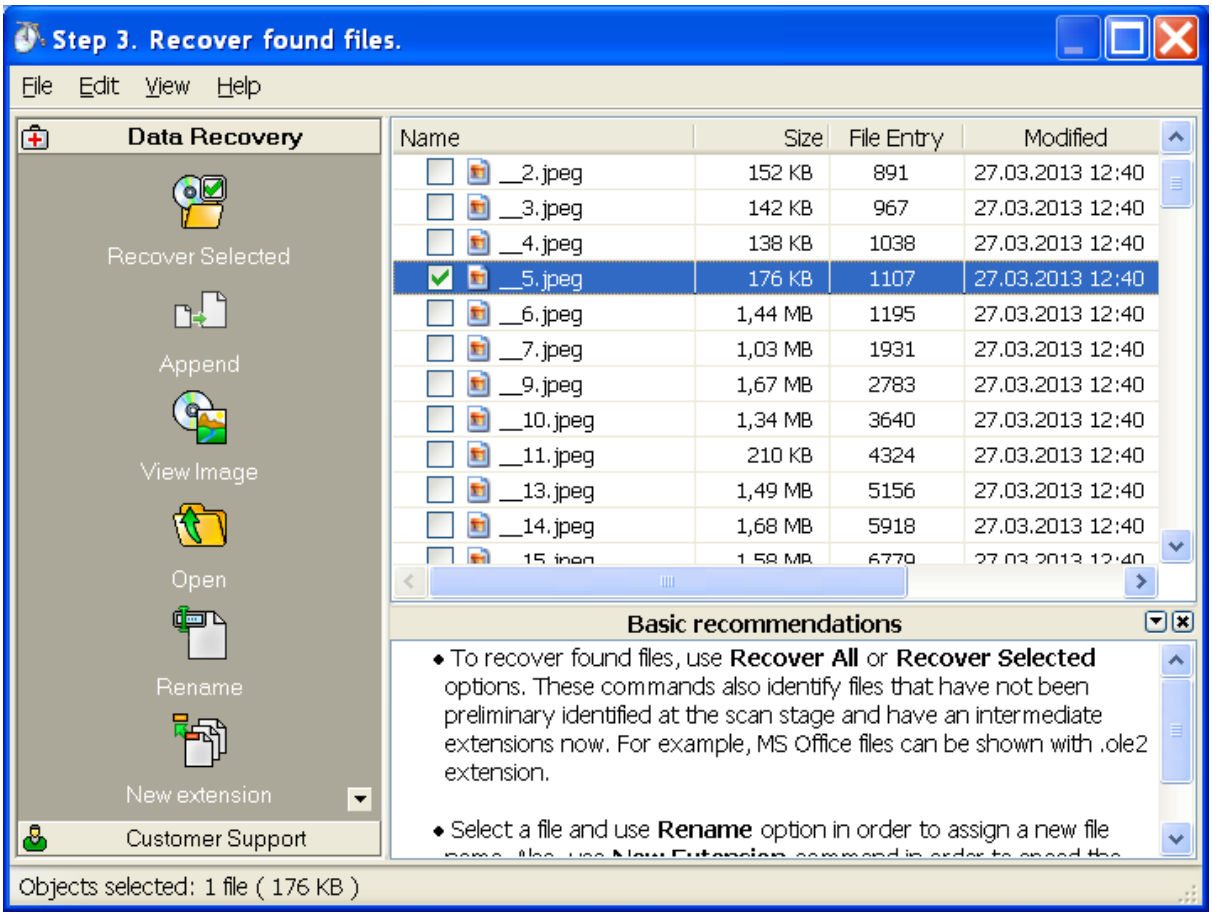
window similar to the one shown here:


Step 3. Recover found files.
File Edit View Help
Data Recovery
Recover Selected
Append
View Image
Open
Rename
New extension
Customer Support
Name Size File Entry Modified
__2.jpeg 152 KB 891 27.03.2013 12:40
__3.jpeg 142 KB 967 27.03.2013 12:40
__4.jpeg 138 KB 1038 27.03.2013 12:40
__5.jpeg 176 KB 1107 27.03.2013 12:40
__6.jpeg 1,44 MB 1195 27.03.2013 12:40
__7.jpeg 1,03 MB 1931 27.03.2013 12:40
__9.jpeg 1,67 MB 2783 27.03.2013 12:40
__10.jpeg 1,34 MB 3640 27.03.2013 12:40
__11.jpeg 210 KB 4324 27.03.2013 12:40
__13.jpeg 1,49 MB 5156 27.03.2013 12:40
__14.jpeg 1,68 MB 5918 27.03.2013 12:40
Basic recommendations
• To recover found files, use Recover All or Recover Selected options. These commands also identify files that have not been preliminary identified at the scan stage and have an intermediate extensions now. For example, MS Office files can be shown with .ole2 extension.
• Select a file and use Rename option in order to assign a new file
Objects selected: 1 file (176 KB)

First, try to **Recover All** or **Selected** files. These commands also allow to complete an identification of files that have not been preliminary identified on the scan stage, or have an intermediate extensions. For example, **.ole2** for MS Office files. If you know an actual file name, you can **Rename** the selected file manually, or/and use **New Extension** command to speed the re-naming process in case of the large list of one-type files.

6.10. Burning recovered data.

CDRoller Wizard interface allows to burn the recovered data, using a simple "step by step" procedure. To display the Wizard dialog, just click the **Burn** button in the Main ToolBar or select the same option from File Menu.

Here is an example how to use a Wizard interface in order to place a recovered files and folders onto a new DVD+RW disc. First, you should select your task in the **Start Window** and click the **Next** button:

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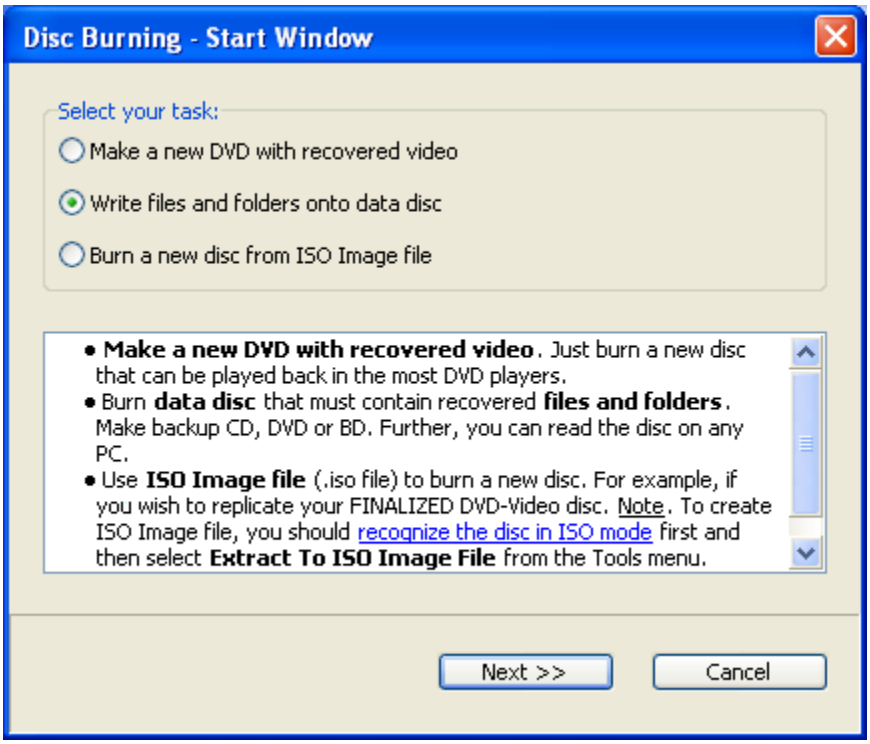
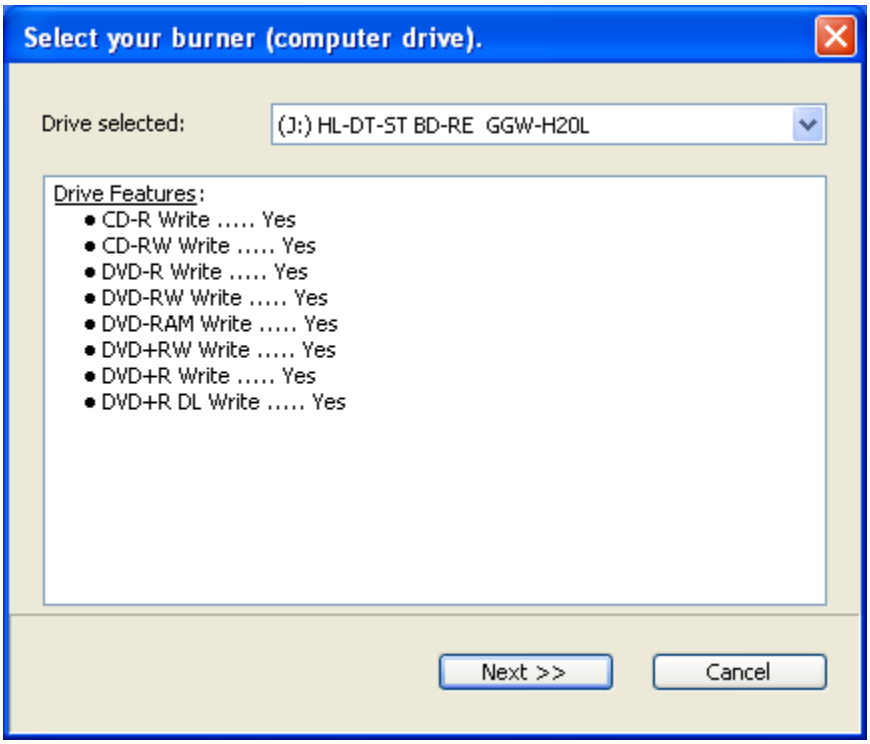

Disc Burning - Start Window
Select your task:
Make a new DVD with recovered video
Write files and folders onto data disc
Burn a new disc from ISO Image file
• Make a new DVD with recovered video. Just burn a new disc that can be played back in the most DVD players.
• Burn data disc that must contain recovered files and folders. Make backup CD, DVD or BD. Further, you can read the disc on any PC.
• Use ISO Image file (.iso file) to burn a new disc. For example, if you wish to replicate your FINALIZED DVD-Video disc. Note. To create ISO Image file, you should recognize the disc in ISO mode first and then select Extract To ISO Image File from the Tools menu.
Next >>
Cancel

Now, please select your burner (computer drive) and click the **Next** button. The displayed drive features can help you to determine whether the selected device supports the type of CD or DVD media you want to burn. For example, do not try to burn DVD discs, using CD-RW drive.


Select your burner (computer drive).
Drive selected:
(J:) HL-DT-ST BD-RE GGW-H20L
Drive Features:
• CD-R Write ..... Yes
• CD-RW Write ..... Yes
• DVD-R Write ..... Yes
• DVD-RW Write ..... Yes
• DVD-RAM Write ..... Yes
• DVD+RW Write ..... Yes
• DVD+R Write ..... Yes
• DVD+R DL Write ..... Yes
Next >>
Cancel

Just insert a new (blank) disc and click the **Next** button. For multisession disc, you can select a prior session to be included into a current compilation.

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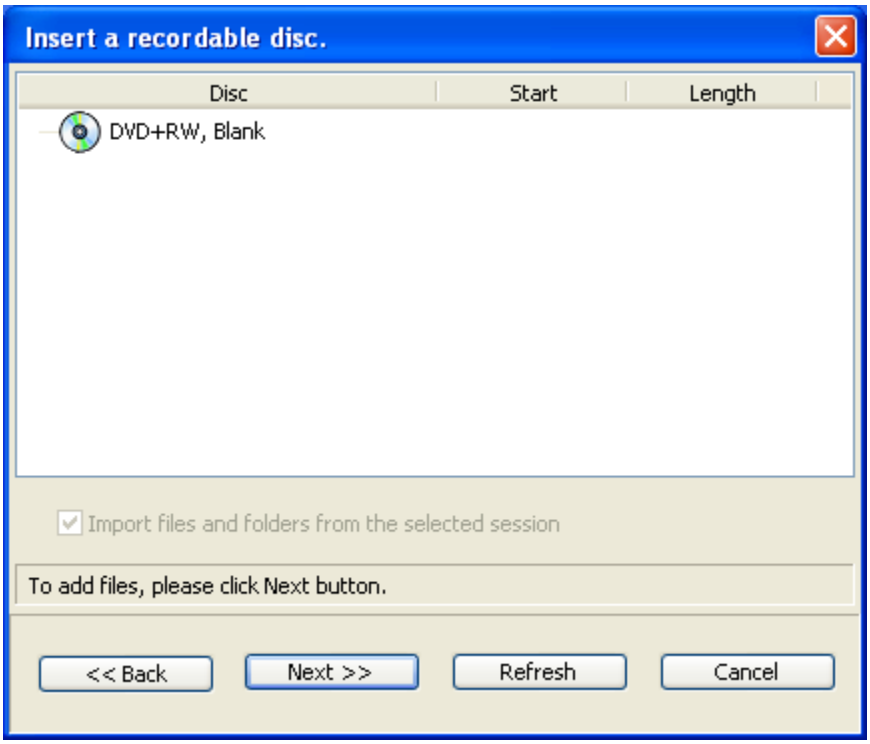

Now, please add files or/and folders into your current compilation and click the Next button. You can use **Add** button, or just drag files and folders from the Windows Explorer. To edit a current compilation, please use **Delete** and **Rename** options for the selected item(s).

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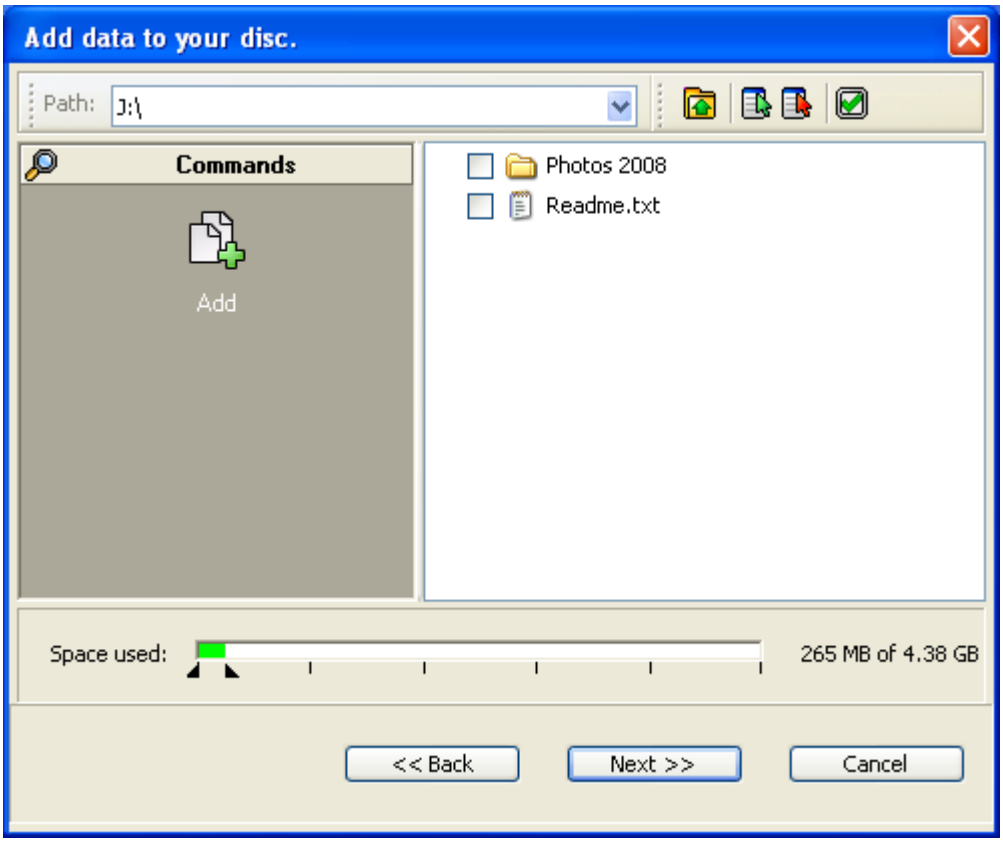
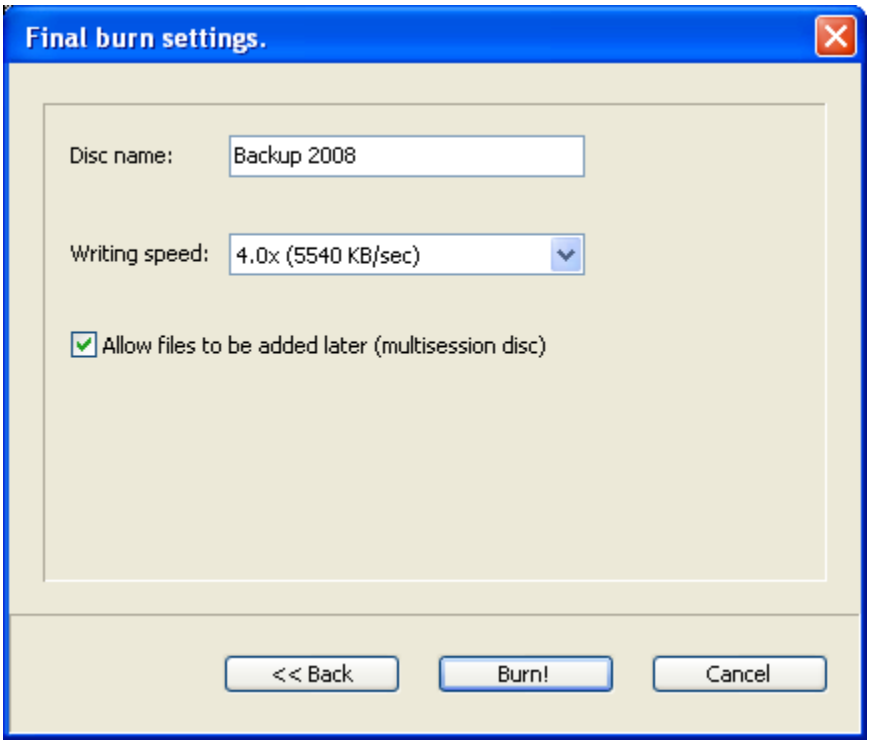


At this step, you can edit disc (session) name, assign writing speed and choose - whether you will add a new files on the same disc later or not. To start a burn process, just click the **Burn!** button.



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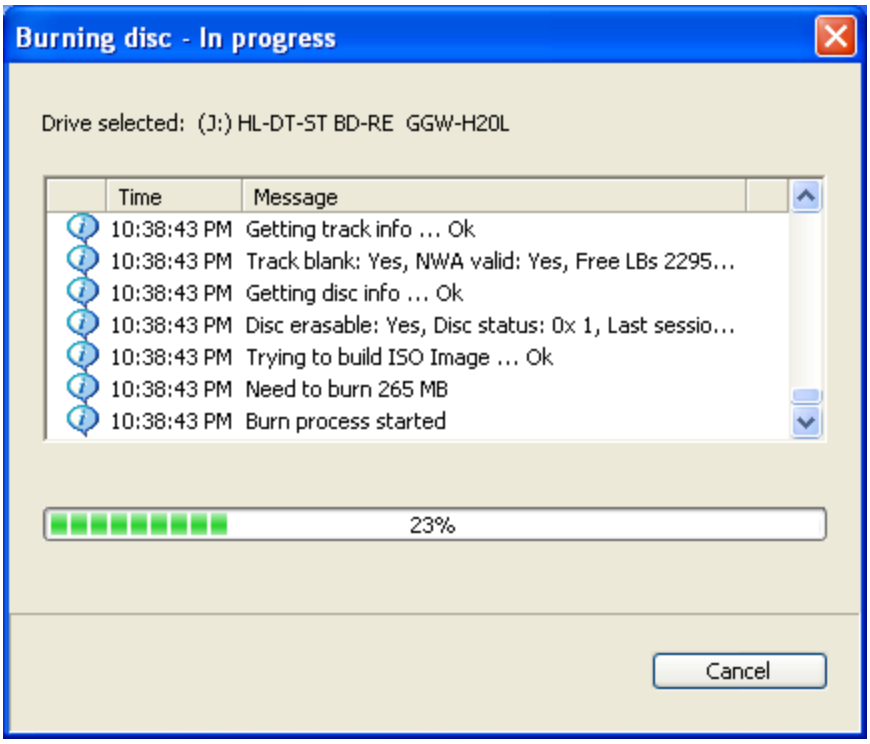
Finally, you should see "Burning disc ..." dialog similar to the one shown here.


Burning disc - In progress
Drive selected: (J:) HL-DT-ST BD-RE GGW-H20L
Time
Message
10:38:43 PM Getting track info ... Ok
10:38:43 PM Track blank: Yes, NWA valid: Yes, Free LBs 2295...
10:38:43 PM Getting disc info ... Ok
10:38:43 PM Disc erasable: Yes, Disc status: 0x 1, Last sessio...
10:38:43 PM Trying to build ISO Image ... Ok
10:38:43 PM Need to burn 265 MB
10:38:43 PM Burn process started
23%
Cancel

Notes.
1. We do not recommend to try to place a new files onto your "troubled" discs. Also, please do not try to close these discs, hoping to make them readable for Windows. The most safe way is to recover your files from the "troubled" disc to Hard Disk Drive (HDD) first, and then place (write) them onto a new (blank) disc.
2. To erase your re-writable disc, just click the **Erase** button in the Main ToolBar or use the same option from File Menu.

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7. Additional features.

Overview.

CDRoller also offers you additional instruments such as:

- Testing Disc
- Extracting Audio Tracks
- Extracting ISO Image File
- Creating Short CD/DVD Image
- Examining disc sectors at low level
- Recovering flash data
- Use image file to manage disc sectors
- Viewing Images

All mentioned above features are integrated into a common intuitive shell of CDRoller.

7.1. Testing disc.

With the help of Disc Test, you can check if a disc contains errors. It can be useful to:
- Check the quality of the CD/DVD/BD media.
- If you have a CD/DVD/BD recorder, you can check whether the data (files and folders) on the disc are written correctly.
- Get advanced information from the Disc Volume.
The test can be used for both data and audio dscs. It also examines Multisession and Mixed mode discs.

The list of tests includes **File System** test, **Disc Surface** test and **Digital Audio Extraction (DAE) Quality** test. Since the program automatically determines the disc type, it always knows what the test from the list can be applied to the CD/DVD/BD inserted into the drive. With the help of Disc Test options, you can manually include (exclude) an appropriate test to (from) the list, set scan ratio while testing the disc surface and also select tests of all sessions or only current session on multisession disc.

We recommend you to run the disc test periodically on the discs with ISO/Joliet file systems, in order to make sure a valuable files were really ("physically") placed on the disc, particularly in the following situations:
- if your DVD was created by **Nero Burning ROM**.
- if your CD with photos was burnt from **memory cards**.

To start the disc test, please select the **Test Disc** option in the **Tools** menu. The program displays a progress dialog similar to the one shown here.

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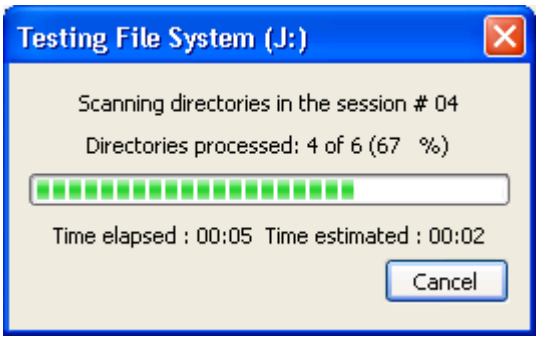
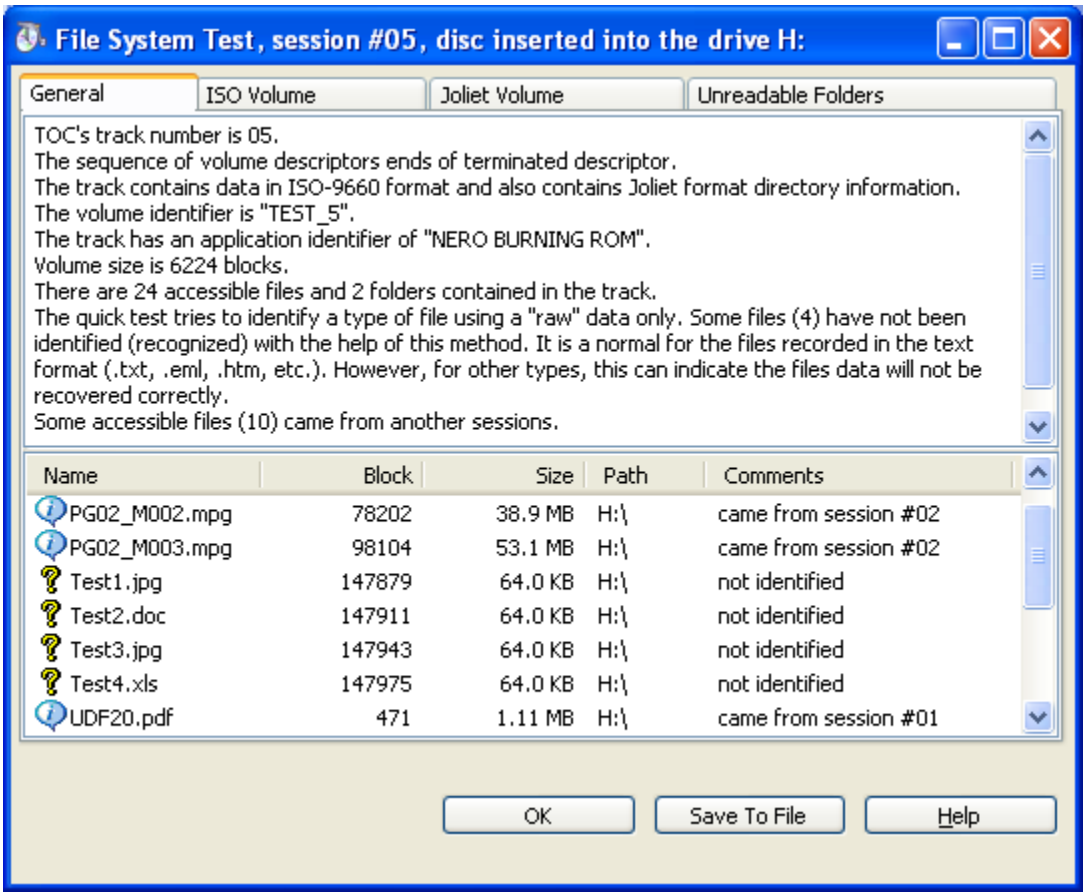

Testing File System (J:)
Scanning directories in the session # 04
Directories processed: 4 of 6 (67 %)
Time elapsed : 00:05 Time estimated : 00:02
Cancel

After all tests have completed, the program generates the report(s). An example of ISO/Joliet File System report is shown here.


File System Test, session #05, disc inserted into the drive H:
General
ISO Volume
Joliet Volume
Unreadable Folders
TOC's track number is 05.
The sequence of volume descriptors ends of terminated descriptor.
The track contains data in ISO-9660 format and also contains Joliet format directory information.
The volume identifier is "TEST_5".
The track has an application identifier of "NERO BURNING ROM".
Volume size is 6224 blocks.
There are 24 accessible files and 2 folders contained in the track.
The quick test tries to identify a type of file using a "raw" data only. Some files (4) have not been identified (recognized) with the help of this method. It is a normal for the files recorded in the text format (.txt, .eml, .htm, etc.). However, for other types, this can indicate the files data will not be recovered correctly.
Some accessible files (10) came from another sessions.
Name Block Size Path Comments
PG02_M002.mpg 78202 38.9 MB H:\ came from session #02
PG02_M003.mpg 98104 53.1 MB H:\ came from session #02
Test1.jpg 147879 64.0 KB H:\ not identified
Test2.doc 147911 64.0 KB H:\ not identified
Test3.jpg 147943 64.0 KB H:\ not identified
Test4.xls 147975 64.0 KB H:\ not identified
UDF20.pdf 471 1.11 MB H:\ came from session #01
OK
Save To File
Help

7.2. Extracting Audio Tracks.

To extract ("rip") audio track(s):
1. Insert CD audio into the drive.
2. After disk recognition left double click on CD name in the Main Window. The program displays the **Main Window** similar to the one shown here.

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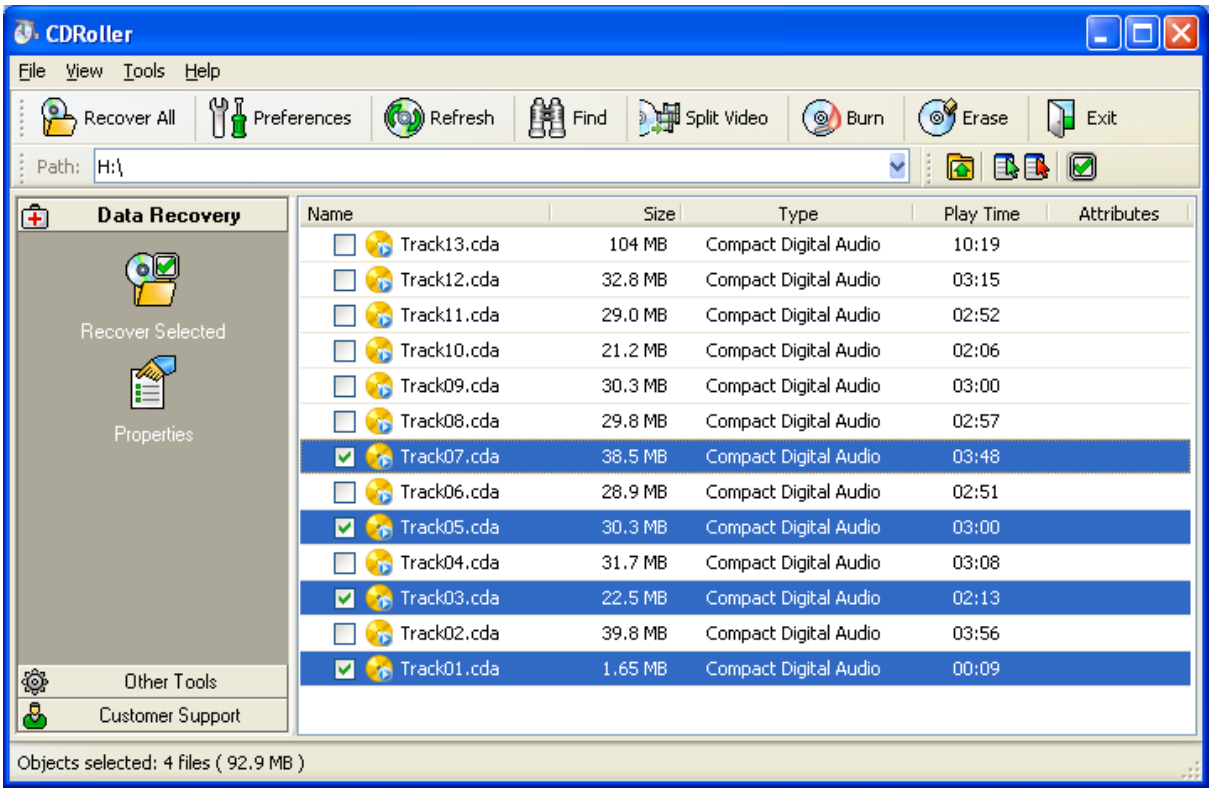
CDRoller
File View Tools Help
Recover All
Preferences
Refresh
Find
Split Video
Burn
Erase
Exit
Path: H:\
Data Recovery
Recover Selected
Properties
Other Tools
Customer Support
Name Size Type Play Time Attributes
Track13.cda 104 MB Compact Digital Audio 10:19
Track12.cda 32.8 MB Compact Digital Audio 03:15
Track11.cda 29.0 MB Compact Digital Audio 02:52
Track10.cda 21.2 MB Compact Digital Audio 02:06
Track09.cda 30.3 MB Compact Digital Audio 03:00
Track08.cda 29.8 MB Compact Digital Audio 02:57
Track07.cda 38.5 MB Compact Digital Audio 03:48
Track06.cda 28.9 MB Compact Digital Audio 02:51
Track05.cda 30.3 MB Compact Digital Audio 03:00
Track04.cda 31.7 MB Compact Digital Audio 03:08
Track03.cda 22.5 MB Compact Digital Audio 02:13
Track02.cda 39.8 MB Compact Digital Audio 03:56
Track01.cda 1.65 MB Compact Digital Audio 00:09
Objects selected: 4 files (92.9 MB)

3. Select the track(s).
4. Click the **Recover Selected** command in the Side Bar, or simply drag and drop selected track(s) to the destination on HDD.
5. The program displays a progress dialog similar to the one shown here.

Extracting audio track(s)...
File: Track03.wav
Sectors processed: 5571 of 10020
Total sectors processed: 5571 of 10020 (56 %)
Time elapsed : 00:35 Time estimated : 00:28
Cancel

To extract audio tracks the program utilize the method known as **Digital Audio Extraction** (DAE). Key features:

- Applies a set of different extraction methods with Dynamic, Fixed synchronization with "jitter" correction, re-read block of sectors in case of error or/and lost of synchronization.
- Autodetects an appropriate read function for CD drive.
- Supports WAV, MP3, MP2, OGG or RAW formats of output file.

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- Supports Windows ACM (Windows Audio Compression Manager).
- Supports Lame and Blade MP3 encoders (DLLs) and Ogg Vorbis, high-quality and patent-free audio codec.
- Extracts audio tracks "on-the-fly", directly to the output file without creating an intermediate WAV file.

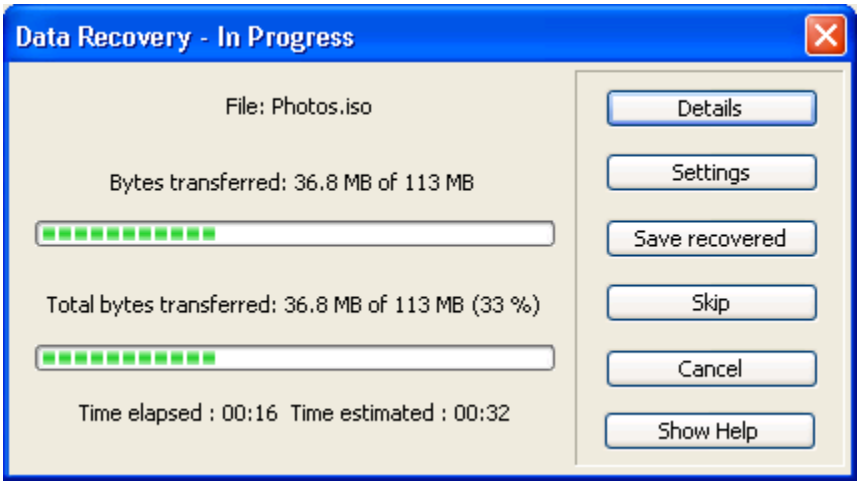
Hint. To change default settings (select another encoder, extraction method, etc.) use Audio Extraction tab in the Preferences dialog.

Troubleshooting.
For the "problem" Audio CDs (discs with various defects, written with hardware or software errors, etc.), or when you get the "**Can not process Digital Audio Extraction** ..." message, we recommend to check the **Read damaged sectors "as is"** under Browser tab in the program Preferences and try to extract audio track(s) again.

7.3. Extracting ISO Image File.

Key Features.
- Extracts data into ISO Image File (*.iso file) from CD/DVD/Blu-ray discs with the different file systems (UDF, ISO/Joliet, FAT 32).
- Can be used to copy (replicate) finalized DVD-video and AVCHD discs.
- Supports Multi-Session discs, extracting data into ISO Image File from the selected session.
- Uses all recovery methods to save a valuable data from the bad discs.
- Creates *.iso file with buit-in ISO 9660 file system and Joliet files names extensions. This is the most compatible file system that can be read on every machine.
- Converts UDF filenames to Joliet ones to ensure compatibility.
- Automatically creates *.iso file with buit-in UDF 1.02 file system if a large file (over 4 GB) has been detected on the source UDF disc (session).
- Extracts data into *.iso file from flash media cards.

To extract ISO Image File:
1. Insert the disc into the drive.
2. After disc recognition select **Tools** | **Extract to ISO Image File** option.
3. The program displays a progress dialog similar to the one shown here.



Note. To prevent copying of "inaccessible" files from flash media card to ISO Image, uncheck **Display deleted files and folders** under Browser tab in the Preferences dialog.

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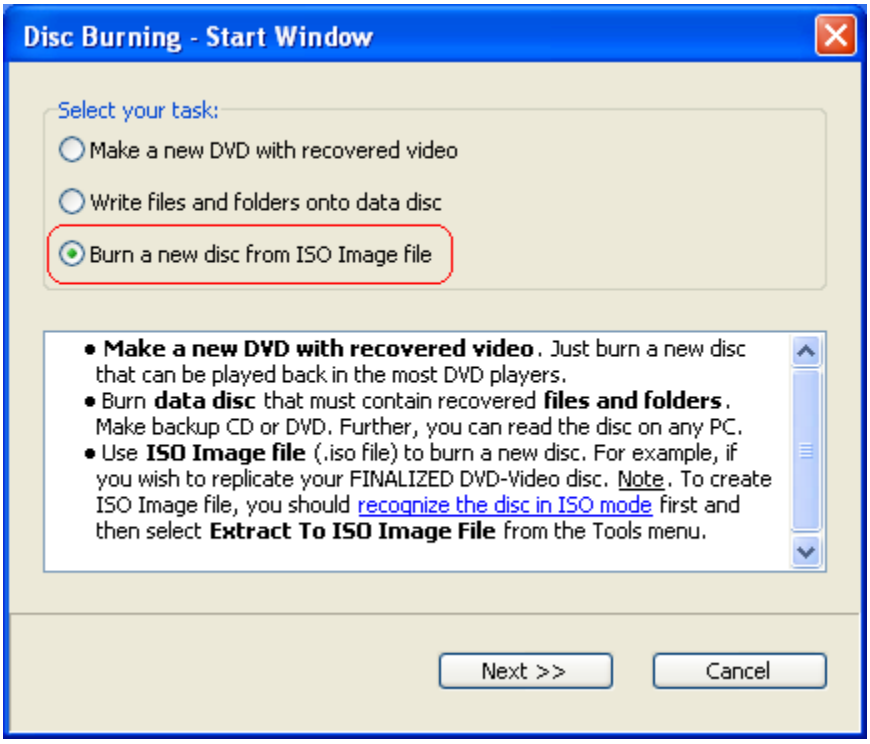
Burning a new disc.
To make a new disc, just click **Burn** button, select **Burn a new disc from ISO Image file** in the **Start Window** and click the Next button.


Disc Burning - Start Window
Select your task:
Make a new DVD with recovered video
Write files and folders onto data disc
Burn a new disc from ISO Image file
• Make a new DVD with recovered video. Just burn a new disc that can be played back in the most DVD players.
• Burn data disc that must contain recovered files and folders. Make backup CD or DVD. Further, you can read the disc on any PC.
• Use ISO Image file (.iso file) to burn a new disc. For example, if you wish to replicate your FINALIZED DVD-Video disc. Note. To create ISO Image file, you should recognize the disc in ISO mode first and then select Extract To ISO Image File from the Tools menu.
Next >>
Cancel

Further, using a simple "step by step" procedure, you can select CD/DVD/BD burner (computer drive), add the recovered ISO Image File into your compilation and, finally, burn a new disc.

7.4. Creating Short CD/DVD Image.

CDRoller offers a simple CD/DVD catalog that is based on usage of Short CD/DVD Image - a file packed in a special way, with unique name containing **ALL DIRECTORY STRUCTURE** (directory tree) of the disk, including complete folders and files names with attributes. This enables you to browse through the folders, search for the files or/and folders which you need (with the help of **Tools** | **Find** option), detect the prorerties of them, using the **Properties** command, but in order to retrieve any file, you should insert a "real" CD or DVD. When you insert a disc that has the image that has been created before, CDRoller determines this image as a "**mirror**" of the real CD(DVD), displays it with an appropriate icon in the **Main window** and further, utilizes image to access to any folder quickly without reading of inserted CD(DVD). This is an extremely useful if your "real" CD (DVD) has become a disc with unreadable folder(s) and, therefore you can not access to its files.

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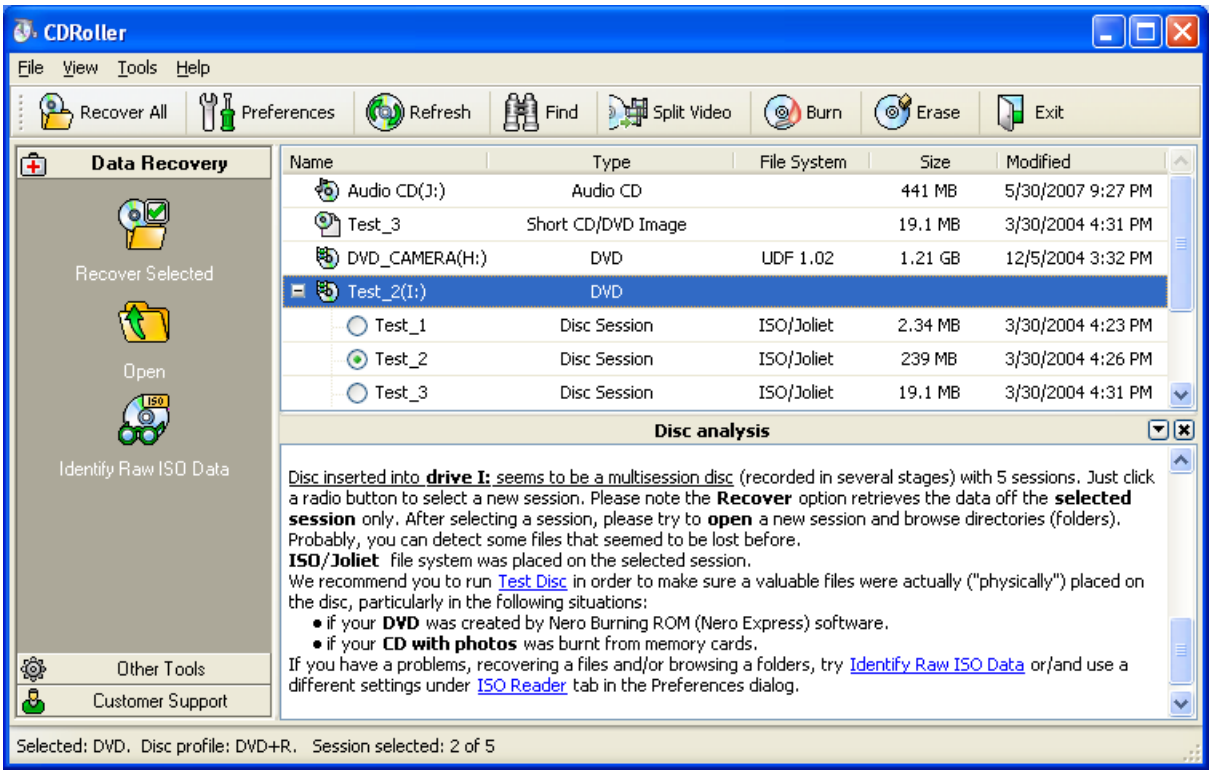
CDRoller
File View Tools Help
Recover All
Preferences
Refresh
Find
Split Video
Burn
Erase
Exit
Data Recovery
Recover Selected
Open
Identify Raw ISO Data
Other Tools
Customer Support
Name
Type
File System
Size
Modified
Audio CD(J:)
Audio CD
441 MB
5/30/2007 9:27 PM
Test_3
Short CD/DVD Image
19.1 MB
3/30/2004 4:31 PM
DVD_CAMERA(H:)
DVD
UDF 1.02
1.21 GB
12/5/2004 3:32 PM
Test_2(I:)
DVD
Test_1
Disc Session
ISO/Joliet
2.34 MB
3/30/2004 4:23 PM
Test_2
Disc Session
ISO/Joliet
239 MB
3/30/2004 4:26 PM
Test_3
Disc Session
ISO/Joliet
19.1 MB
3/30/2004 4:31 PM
Disc analysis
Disc inserted into drive I: seems to be a multisession disc (recorded in several stages) with 5 sessions. Just click a radio button to select a new session. Please note the Recover option retrieves the data off the selected session only. After selecting a session, please try to open a new session and browse directories (folders).
Probably, you can detect some files that seemed to be lost before.
ISO/Joliet file system was placed on the selected session.
We recommend you to run Test Disc in order to make sure a valuable files were actually ("physically") placed on the disc, particularly in the following situations:
• if your DVD was created by Nero Burning ROM (Nero Express) software.
• if your CD with photos was burnt from memory cards.
If you have a problems, recovering a files and/or browsing a folders, try Identify Raw ISO Data or/and use a different settings under ISO Reader tab in the Preferences dialog.
Selected: DVD. Disc profile: DVD+R. Session selected: 2 of 5

To create Short CD/DVD Image:
1. Insert CD or DVD into the drive.
2. Select **Tools** | **Short CD/DVD Image** option.

You can create the image with CD (DVD) name (label) or manually assign a new name for each inserted disk. In case of **multisession** disc, you can create CD/DVD image for each session. All CD/DVD images automatically are placed into a separate directory assigned under the CD/DVD Library tab in the Preferences dialog.

7.5. Examining disc sectors at low level.

Key features.

- **Intensive disc scan for particular data**. For example, it searches for an email address on a disc regardless of what file the mail may be in. Can be used to examine the data on optical discs (CD, DVD, Blu-ray) and also on hard disks, flash drives and other types of Windows disks/drives. To activate the search window, just click the **Examine Sectors** button in Other Tools section of Side Bar, or select the same command in the **Tools** menu.

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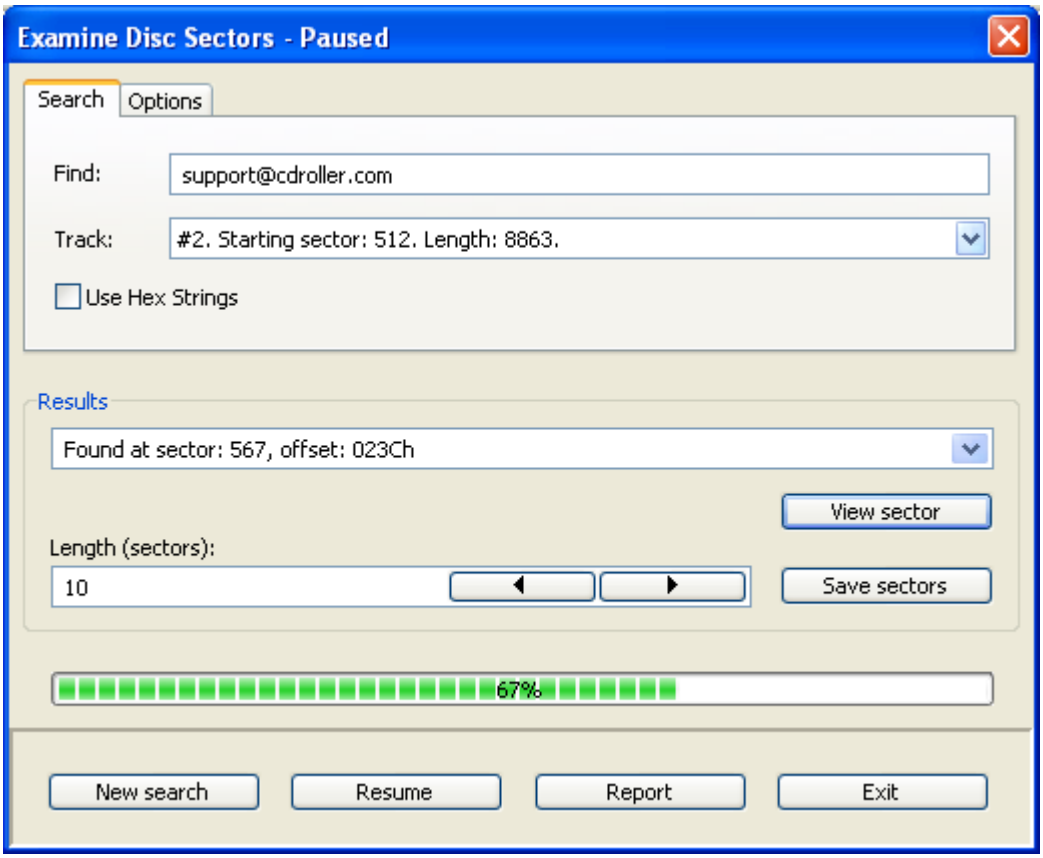

You can stop a search in any time, view intermediate results and continue the process where you left it before.

- **Sector View** allows you to display the disc sectors in the Text, Binary, Hexadecimal/Text or Unicode mode. There is no requirement that the sectors belong to a file - any sector on the disc can be displayed. Just click **View sector** button in the Examine Disc Sectors dialog shown above. There is no limitation to view the sector data only in a single window - multiple **Sector View** dialogs can be open at the same time.

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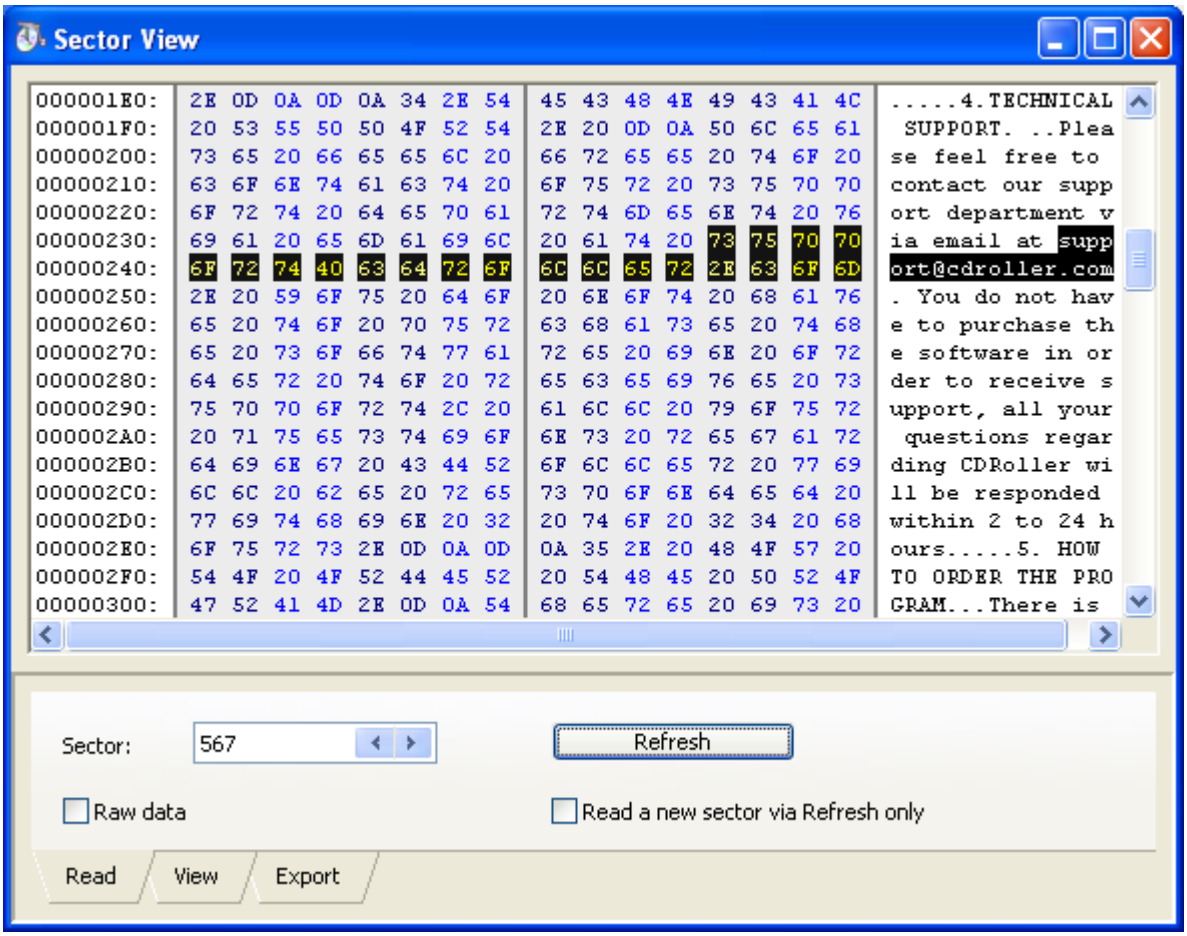

To move between sectors you can either use the arrows to the right of the sector number, or you can enter a sector number and press the Enter key, or just paste a new sector number from the clipboard. You can simply adjust the font size under the View tab in order to get more comfortable view. **Copy** and **Save To File** options are also available under the **Export** tab.

- **Direct examination of the content of selected file** from the main window. To view file content, just select a file in the main window and click the **Examine Sectors** button in Other Tools section of Side Bar. Or, right click the file name and select Examine Sectors from the pop-up menu.

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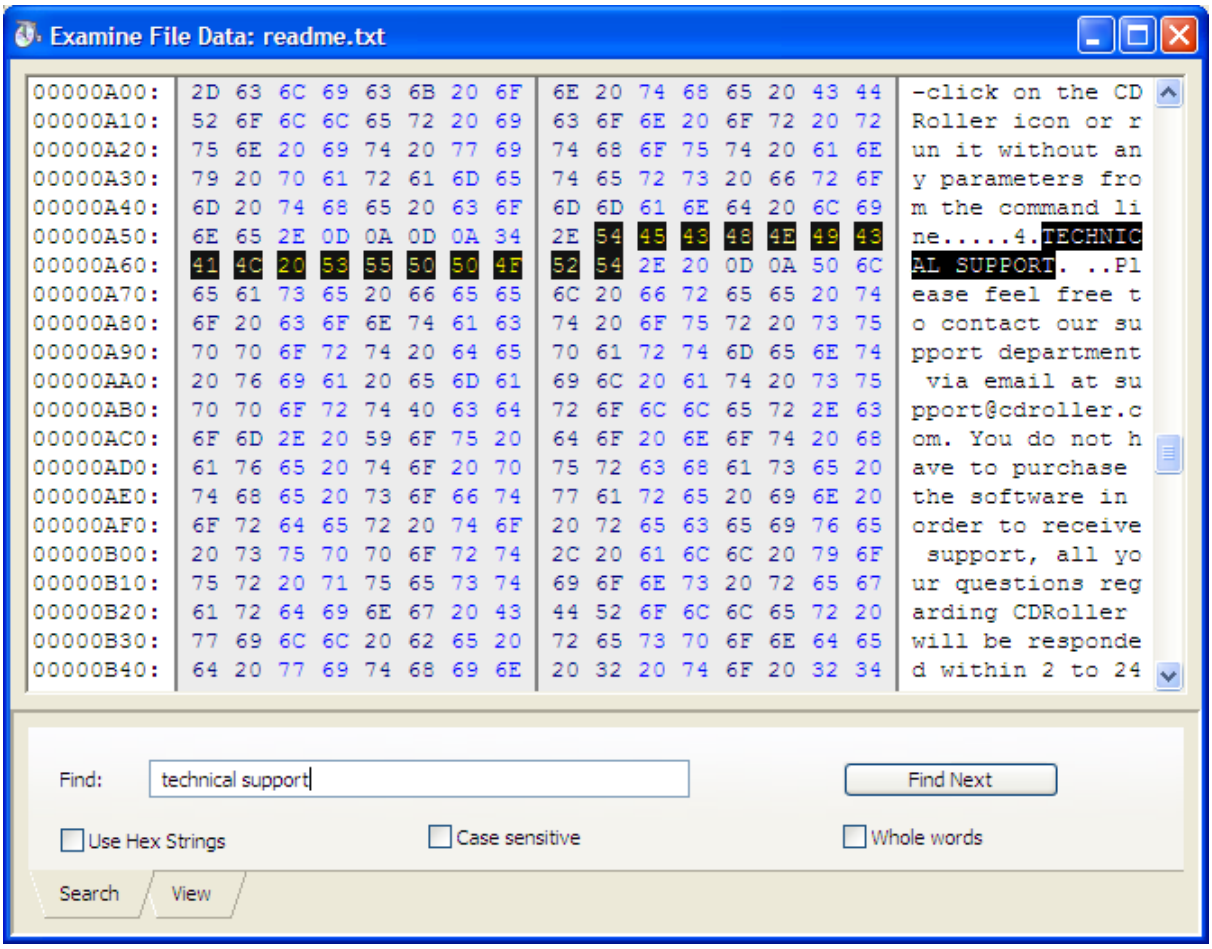

You can find a particular data (text), using a set of options under the **Search** tab. The information can be also displayed in the Text, Binary, Hexadecimal/Text or Unicode mode with font size adjustment. The data pane can be also resized and scrolled.

- **Support of External Hex Editor**. Instead of built-in Sector Viewer, you can simply connect a professional hex editor (WinHex, FlexHex, Hex Workshop, HxD, etc.) and use it for detailed analysis of selected sectors or file data.

To activate this option, just check the **Use external hex editor...** under CD/DVD Library tab in the Preferences dialog:

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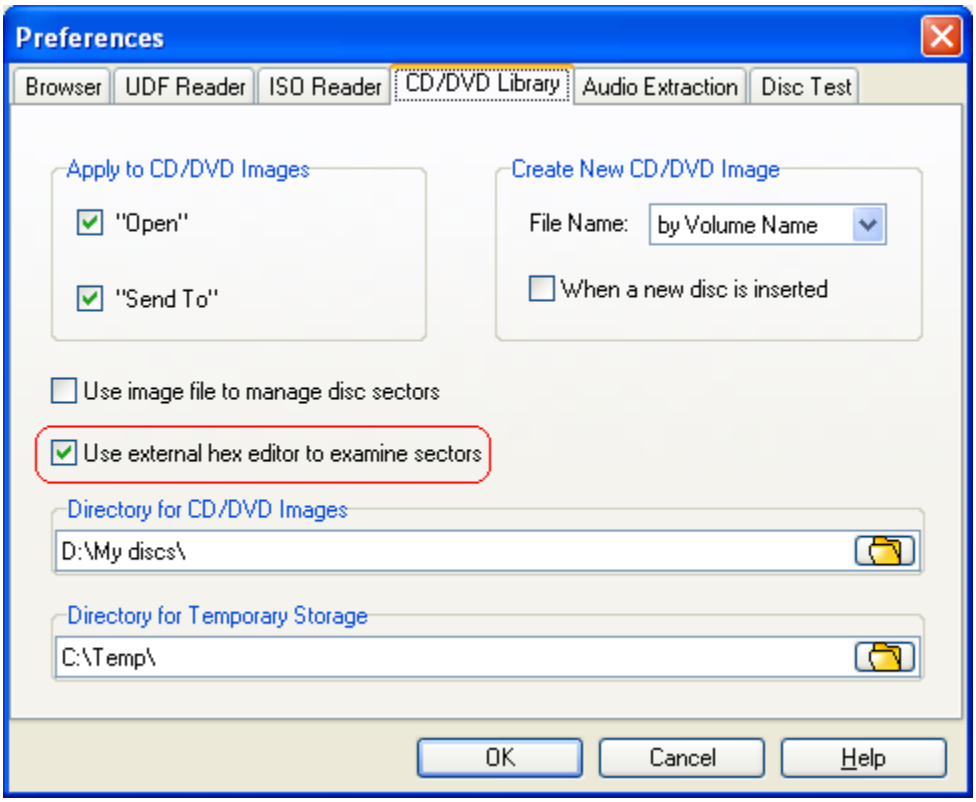

The next time, when you apply **Examine Sectors** to the selected disc or file in the program window, you're asked to assign **External Hex Editor**, software installed in your system.

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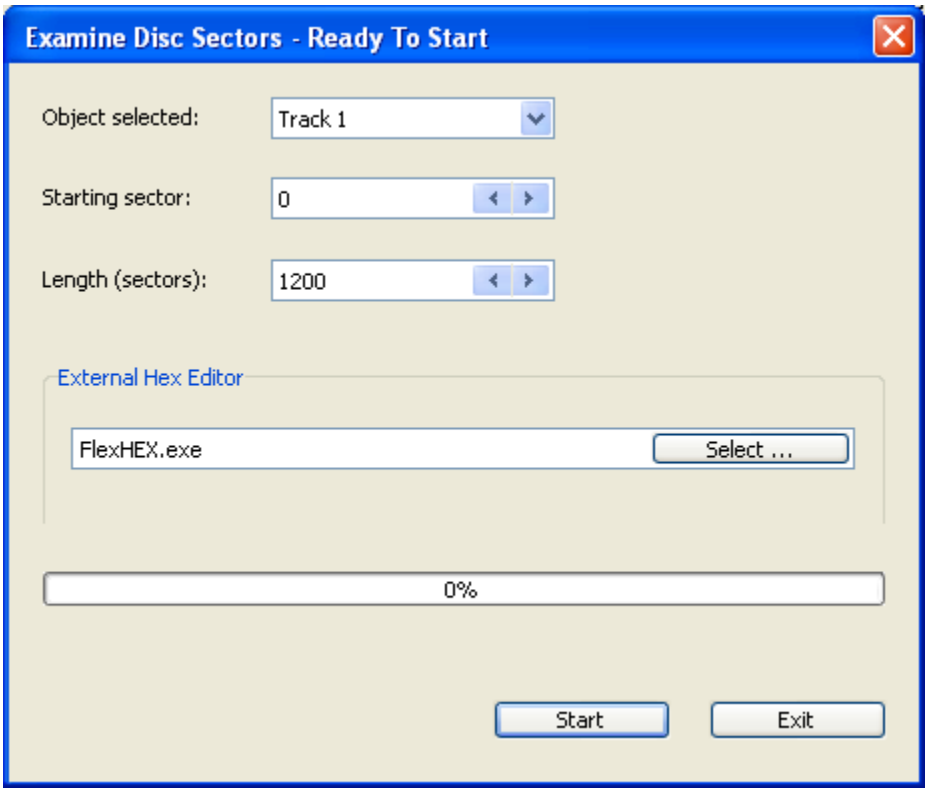

Note. If you manage the inserted disc with CDRoller Image, all changes in the sectors data saved by external editor will modify the image file. Further, you can recover files/folders, or extract a whole track(s), or create ISO Image File, and then burn a new disc with modified data without leaving CDRoller.

7.6. Extended Data Recovery.

Key Features.

- Provides a direct access to raw disk data using a special (kernel-mode) driver, bypassing the restrictions imposed by Windows Vista / 7 / 8 / 8.1 / 10 under standard user (non-administrative) account.
- Recovers pictures, movies and other types of files from **flash memory cards**, such as SmartMedia, Memory Stick, CompactFlash, xD Picture Card and other flash memory devices (e.g. pen drives, thumb drives).
- Retrieves the lost data on Hard Disk Drives (HDD), Solid-State Drives (SSD), floppy disks and other types of Windows disks/drives.
- Restores **accidently deleted files** (so-called "Undelete" option), including the photos deleted by digital cameras.
- Finds and retrieves files on the **quick-formatted** flash media.
- Can be used to recover a video files from Hard Disks Drives built into camcorders.
- Allows to see the found images even in the free trial version with the help of **View Image** option.
- Supports NTFS / FAT12 / FAT16 / FAT32 / exFAT / UDF file systems.
- Integrated into easy-to-use CDRoller shell.
- Writes recovered files onto a new CD, DVD or Blu-Ray discs without leaving CDRoller.
- Works under Windows 2000/XP/2003/Vista/7/8/8.1/10 operating system.

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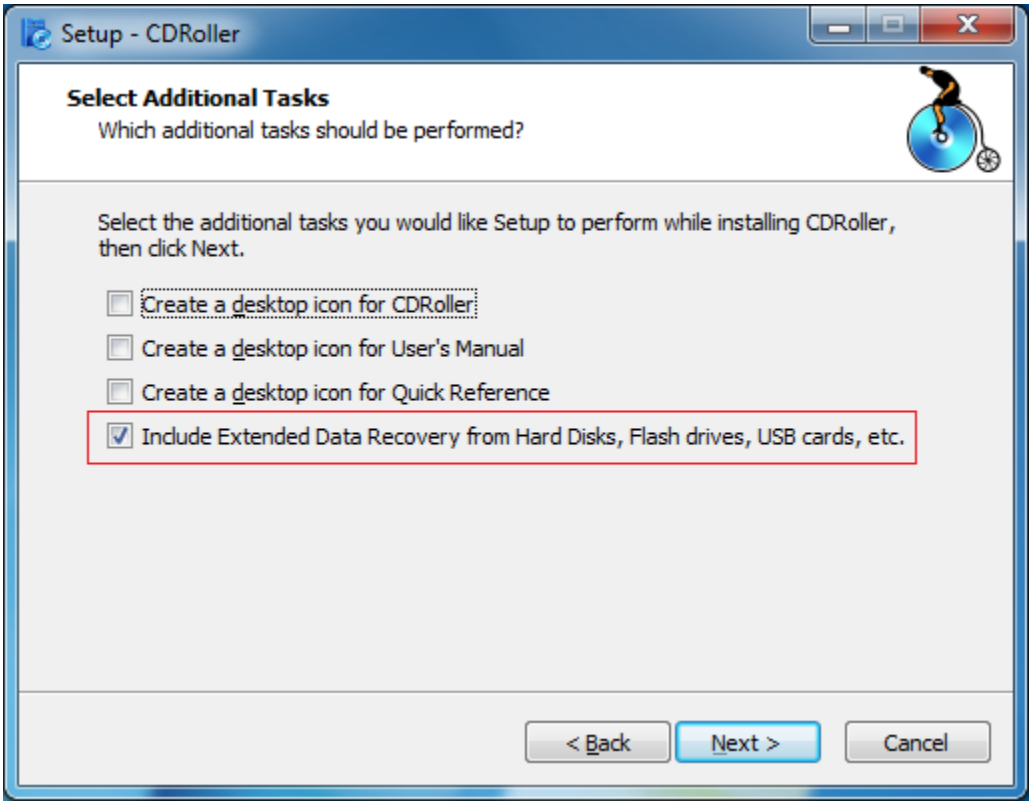
How to get started.

1. When installing CDRoller, check the **Include Extended Data Recovery ...** box under **Select Additional Tasks** window. Further, this will popup User Account Control under Windows Vista/7/8/8.1/10 if you don't run CDRoller as admin by default.


Setup - CDRoller
Select Additional Tasks
Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing CDRoller, then click Next.
Create a desktop icon for CDRoller
Create a desktop icon for User's Manual
Create a desktop icon for Quick Reference
Include Extended Data Recovery from Hard Disks, Flash drives, USB cards, etc.
< Back
Next >
Cancel

2. Simply start CDRoller and select the drive for Extended Data Recovery under **CDRoller - Start Window**. Click the OK button.

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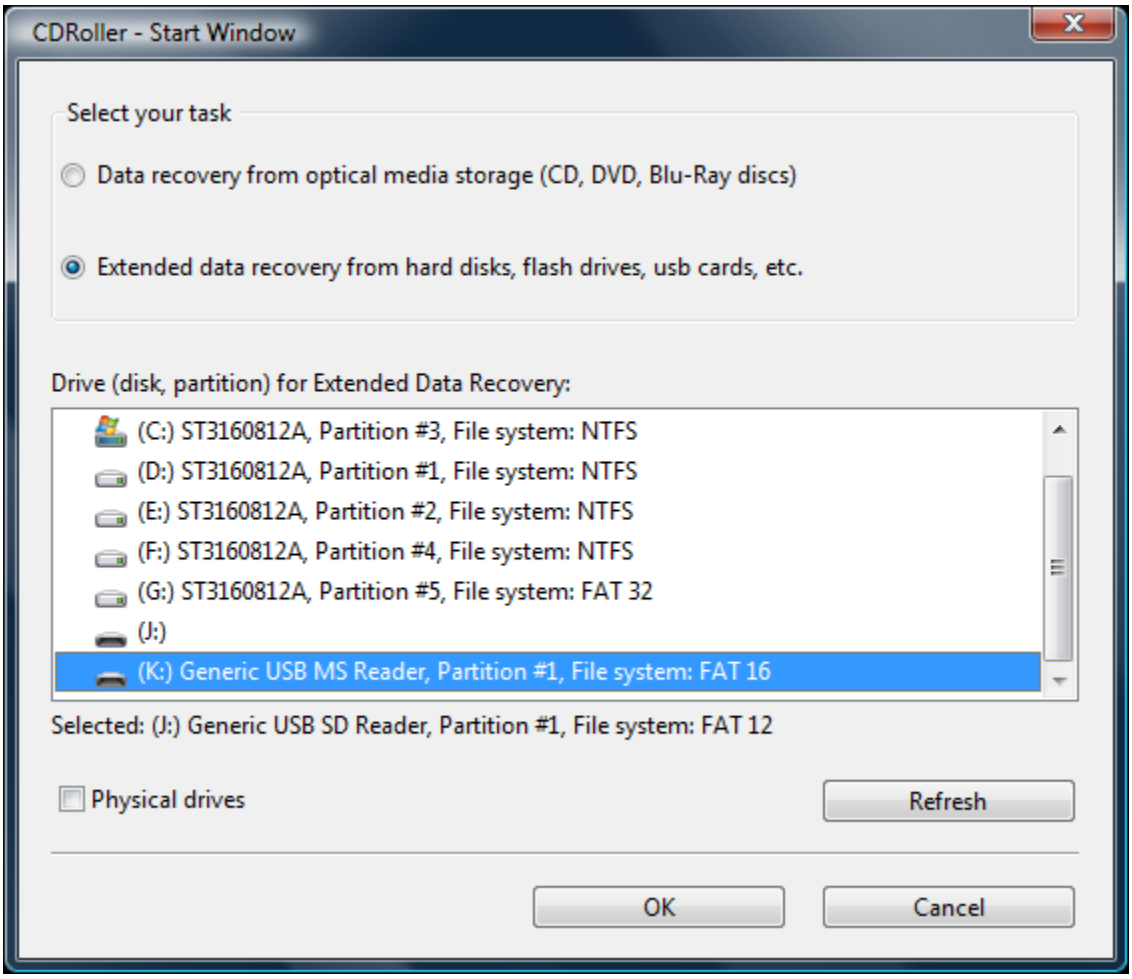
CDRoller - Start Window
Select your task
Data recovery from optical media storage (CD, DVD, Blu-Ray discs)
Extended data recovery from hard disks, flash drives, usb cards, etc.
Drive (disk, partition) for Extended Data Recovery:
(C:) ST3160812A, Partition #3, File system: NTFS
(D:) ST3160812A, Partition #1, File system: NTFS
(E:) ST3160812A, Partition #2, File system: NTFS
(F:) ST3160812A, Partition #4, File system: NTFS
(G:) ST3160812A, Partition #5, File system: FAT 32
(J:)
(K:) Generic USB MS Reader, Partition #1, File system: FAT 16
Selected: (J:) Generic USB SD Reader, Partition #1, File system: FAT 12
Physical drives
Refresh
OK
Cancel

3. Find and recover the lost data. Simply browse the folders in the displayed partition. If you look for the deleted files, please open the **$LOST FILES$** folder at first. You can use the **View Image** in order to preview the found pictures. If your flash with FAT file system media was quick-formatted, please try **Scan FAT Data** option for intensive search of files data.

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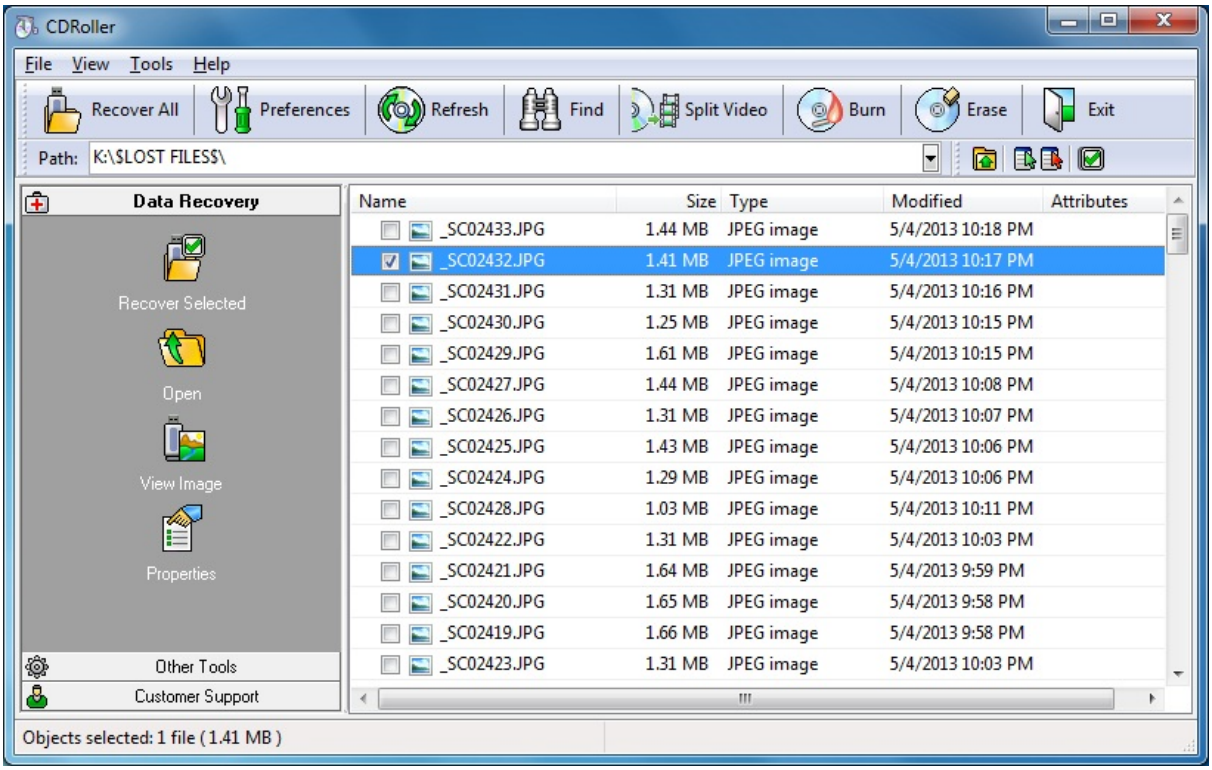
CDRoller
File View Tools Help
Recover All
Preferences
Refresh
Find
Split Video
Burn
Erase
Exit
Path: K:\$LOST FILES$\
Data Recovery
Recover Selected
Open
View Image
Properties
Other Tools
Customer Support
Name Size Type Modified Attributes
_SC02433.JPG 1.44 MB JPEG image 5/4/2013 10:18 PM
_SC02432.JPG 1.41 MB JPEG image 5/4/2013 10:17 PM
_SC02431.JPG 1.31 MB JPEG image 5/4/2013 10:16 PM
_SC02430.JPG 1.25 MB JPEG image 5/4/2013 10:15 PM
_SC02429.JPG 1.61 MB JPEG image 5/4/2013 10:15 PM
_SC02427.JPG 1.44 MB JPEG image 5/4/2013 10:08 PM
_SC02426.JPG 1.31 MB JPEG image 5/4/2013 10:07 PM
_SC02425.JPG 1.43 MB JPEG image 5/4/2013 10:06 PM
_SC02424.JPG 1.29 MB JPEG image 5/4/2013 10:06 PM
_SC02428.JPG 1.03 MB JPEG image 5/4/2013 10:11 PM
_SC02422.JPG 1.31 MB JPEG image 5/4/2013 10:03 PM
_SC02421.JPG 1.64 MB JPEG image 5/4/2013 9:59 PM
_SC02420.JPG 1.65 MB JPEG image 5/4/2013 9:58 PM
_SC02419.JPG 1.66 MB JPEG image 5/4/2013 9:58 PM
_SC02423.JPG 1.31 MB JPEG image 5/4/2013 10:03 PM
Objects selected: 1 file (1.41 MB)

Notes.
1. Do not save the files to the same drive you're recovering from. This may overwrite the data that still need to be recovered. For instance, if you recover data from flash card, do not save the data back to the same card !
2. To change drive (disk partition), use the **Select drive**... option from the File menu.

7.7. Use image file to manage disc sectors.

This option forces the program to create and then use an own image file to manage the disc data (disc sectors). Here, disc image means a combination of **.tbl and .dat** files having the same name before file extension. There are 2 big advantages of image file. First, some CD and DVDs can be "poor-written". Often, one CD/DVD drive can read only a part of such disc. If another CD/DVD drive can access to the bad sectors, CDRoller simply adds a new data to the image file created before. In other words, you get the best out of each and every drive you use. Second, if you intend to read the disc twice, you get much greater speed, having the image on your hard drive. Especially, when there are bad sectors on CD or DVD.

To activate this option, just **check the box with the same name** under CD/DVD Library tab in the Preferences dialog. Further, when you insert the disc, you are prompted to type image file name that will be associated with this disc. We recommend to use friendly and unique name that simply tells about content of inserted disc. For example, 'My photo album 2010' or 'My trip to Canada in 2010'.

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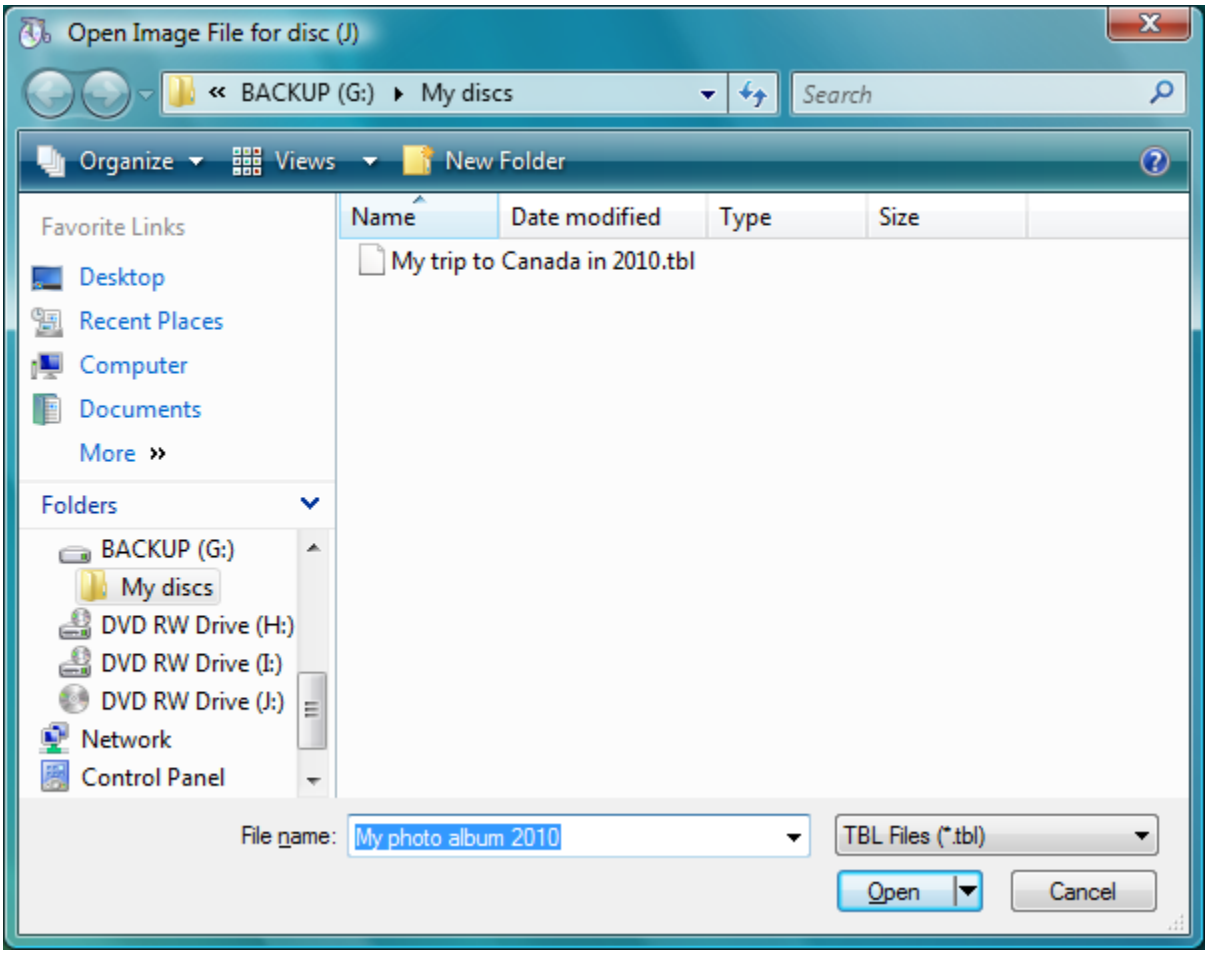

Note. It's a very hard task to check whether the inserted disc matches 100% to the created image or not. Particularly, for the "bad" CD or DVD, due to a lot of factors that contribute to this problem (CD/DVD media types and drives). Therefore, it is important that you always use a correct file name for the inserted disc. We also recommend to keep the created images in the safe place (separate folder). By default, the program places the images to the folder assigned in **Directory for CD/DVD Images** under CD/DVD Library tab in the Preferences dialog.

7.8. Viewing Images.

Key Features.

- Support of all major **graphic formats** (BMP, JPEG, JPEG 2000, GIF, PNG, PCX, PSD, EPS, TIFF, WMF, ICO and TGA) and popular **digital camera RAW formats**: Canon (*.cr2, *.crw), Kodak (*.dcr), Minolta (*.mrw), Nikon (*.nef), Olympus (*.orf), Pentax (*.pef), Fuji (*.raf), Leica (*.raw), Sony (*.srf) and Sigma (*.x3f).
- Extended support of DICOM files for medical imaging (*.dcm, *.dic, *.dicom, *.v2). Single and multipage.
- Display of thumbnail previews.
- Support of image EXIF metadata, including GPS fields. Displays the location on geo map with GPS latitude and longitude coordinates, where selected picture was taken.
- Histogram display (RGB and Gray Scale).
- Batch processing to convert large or small collections of images. Support of image resizing with 11

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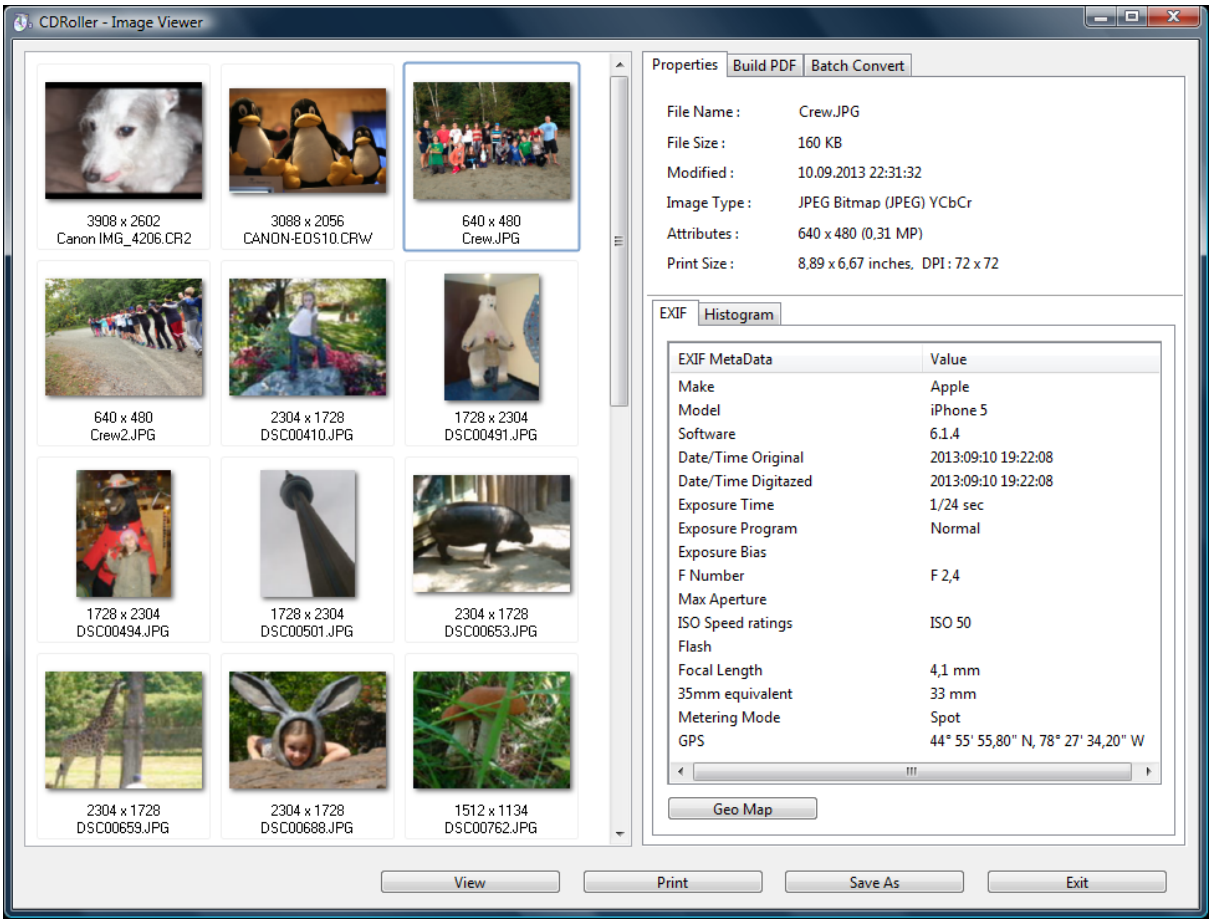
quality filters, including Triangle, Hermite, Bell, BSpline, Lanczos3, Mitchell, FastLinear, Bilinear and Bicubic.

- View with support of "to-fit", "100% size" or "full screen".
- Batch convert of selected images into Adobe PDF or PostScript (PS) file.
- Prints selected images, including print preview support.
- "Save As" with a convert into a wide set of graphic formats.

To start, just select one or more image files and click **View Image** button in the Side Bar (left panel of the window where you can see your images). Or, you can right-click any image file and select the **View Image** from the next (pop-up) menu.



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8. Contacting Technical Support.

The goal of the CDRoller Support Team is to provide our users unrivaled technical assistance when implementing CDRoller technologies. Our commitment to you is very simple. Top-notch support and immediate solutions to your technical problems. Since we have customers throughout the globe, we will do our best to respond to requests 24 hours a day. With our technical assistance, there are no banker's hours, no auto-responder support replies, and no closed for the holiday's door sign.

Each member of CDRoller's programming staff is an expert inside operating system structure. At our team, simplicity and elegance are greatly appreciated, practiced, and achieved. Buy our product, use our service, and you will come to appreciate that too.

You do not have to purchase the software in order to receive support, all your questions regarding CDRoller will be responded within 12 hours, usually within 4 hours.

If you have purchased the product, please include the email address that you used when purchasing the software - we use this to confirm your purchase status and support requests from customers receive priority over others.

You can contact our support department via email at: support@cdroller.com. To be notified about new versions of CDRoller and new products please subscribe to our mailing list at http://www.cdroller.com . All questions regarding orders, licenses or other services should be directed to sales@cdroller.com. If you have any suggestions or comments regarding CDRoller, we'd like to hear from you. Please feel free to send an e-mail to suggest@cdroller.com. All suggestions will be at least considered and you will probably see them as new program's features in the future releases. If you have any problem with our web site at http://www.cdroller.com, please do not hesitate to contact our webmaster at webmaster@cdroller.com.

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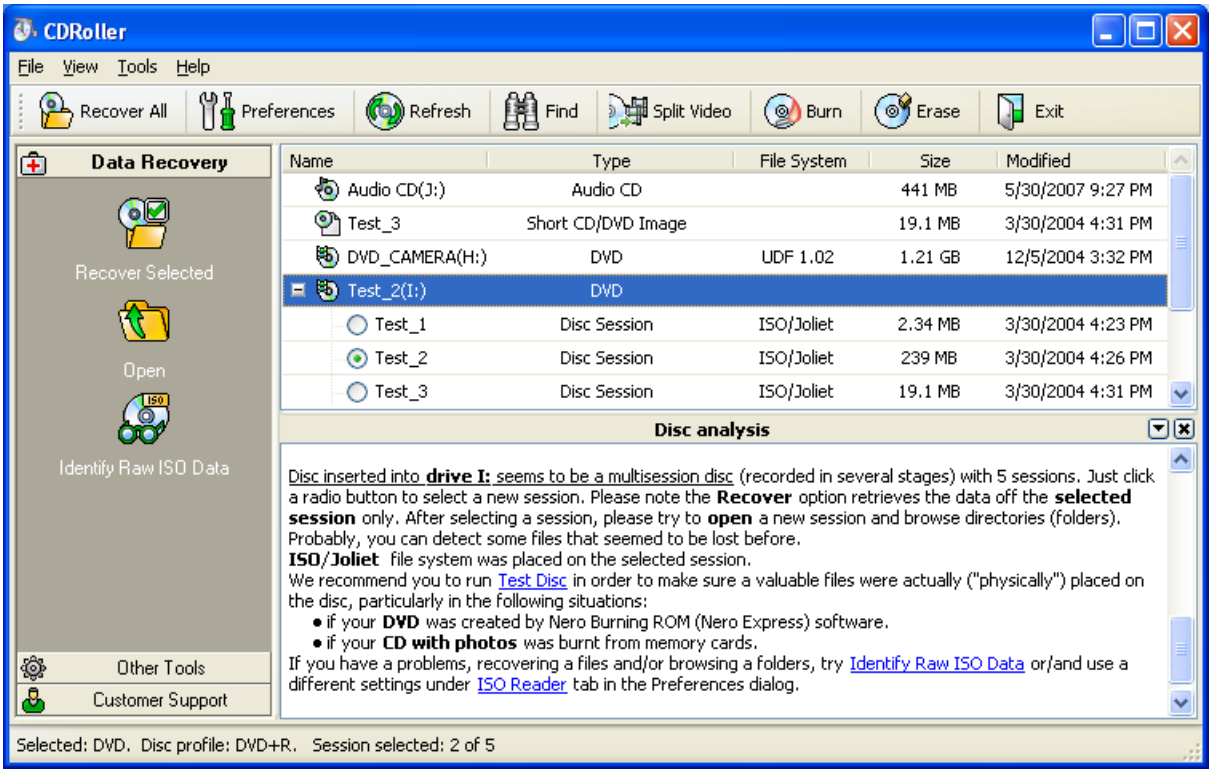
Annex A Controls and dialog boxes.

A.1. Main Window.

The **main program window** consists of **List Window**, **Status Bar** at the bottom, **Side Bar** at the left, **List of available folders**, **Tool Bar** and **Main Menu** on the top.


CDRoller
File View Tools Help
Recover All
Preferences
Refresh
Find
Split Video
Burn
Erase
Exit
Data Recovery
Recover Selected
Open
Identify Raw ISO Data
Other Tools
Customer Support
Name
Type
File System
Size
Modified
Audio CD(J:) Audio CD 441 MB 5/30/2007 9:27 PM
Test_3 Short CD/DVD Image 19.1 MB 3/30/2004 4:31 PM
DVD_CAMERA(H:) DVD UDF 1.02 1.21 GB 12/5/2004 3:32 PM
Test_2(I:) DVD
Test_1 Disc Session ISO/Joliet 2.34 MB 3/30/2004 4:23 PM
Test_2 Disc Session ISO/Joliet 239 MB 3/30/2004 4:26 PM
Test_3 Disc Session ISO/Joliet 19.1 MB 3/30/2004 4:31 PM
Disc analysis
Disc inserted into drive I: seems to be a multisession disc (recorded in several stages) with 5 sessions. Just click a radio button to select a new session. Please note the Recover option retrieves the data off the selected session only. After selecting a session, please try to open a new session and browse directories (folders).
Probably, you can detect some files that seemed to be lost before.
ISO/Joliet file system was placed on the selected session.
We recommend you to run Test Disc in order to make sure a valuable files were actually ("physically") placed on the disc, particularly in the following situations:
• if your DVD was created by Nero Burning ROM (Nero Express) software.
• if your CD with photos was burnt from memory cards.
If you have a problems, recovering a files and/or browsing a folders, try Identify Raw ISO Data or/and use a different settings under ISO Reader tab in the Preferences dialog.
Selected: DVD. Disc profile: DVD+R. Session selected: 2 of 5

The List Window displays the disc contents as main folder containing drives, discs, sub-folders, files or audio tracks. A graphic symbol, or icon associates with every folder, file or audio track. CDRoller assigns a proprietary icon to each type of CD/DVD/BD/Flash media: CDROM, CD-R, CD-RW have the icon as , all types of DVD media - icon, Blu-ray disc - icon, CD-DA (Audio CD) is displayed with icon, symbol as associates with Mixed CD (data plus audio) and empty drive (drive without any disc) has the icon as . Short CD/DVD image has appropriate icon as , and the icon as is assigned to the image that is the "mirror" of inserted disc. Flash memory card (drive) is displayed with icon and USB card reader has the icon as .

To select an item in the List Window, click on its icon or name. If you want to work with multiple items in a folder, you can select (mark) each of them, using the check box near an each item. The total size of selected files is diplayed by the status bar. To select all items in the current folder, or return to the prior level in the directory structure, you may also use an options from the secondary Tool Bar.

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Side Bar similar to Microsoft Outlook offers an intuitive list of commands depending on your situation (disc type, file system, data recovery problems, etc.).

To adjust a column's width, you may move the mouse pointer to the right border of the column heading box. The mouse pointer changes to a double-headed horizontal arrow with a vertical bar in the middle. That means you move the border. Hold down the mouse bottom and drag the border left or right as needed. When the border is in its preferred location, release the mouse button.

Every item displayed in the List Window has its own **Pop-up menu** - if you right-click on it, a menu will show up by it, displaying all the options available over the selected item.

All buttons on the **Toolbar and Side Bar** have a hint - if you don't know what the button does, just place the mouse over it and wait for a second, and a short description will appear.

CDRoller supports drag-and-drop - meaning that any file and/or folder can be copied to desired location on HDD, or any audio track can be extracted to the output file by drag-and-drop.

A.2. Main Menu Commands.

A.2.1. File Menu (*shortcut Alt + F*)

Command	Shortcut	Description
Select drive ...	F2	Selects the drive for Extended Data Recovery
Open	Ctrl + O	Opens current (selected) disc, session, folder or file.
Recover All	F9	Recovers all available objects.
Recover DVD Video	F7	Runs video data recovery using the wizard interface.
Split Video	Ctrl + S	Converts a recovered video into MPEG files.
Refresh	F5	Causes all discs in all drives to be examined.
Properties	-	Displays properties of the selected object(s).
Burn	Ctrl + B	Runs burning process.
Erase	F11	Erases re-writable disc.
Exit	Alt + F4	Ends your CDRoller session.

A.2.2. View Menu (*shortcut : Alt + V*)

Command	Shortcut	Description
Side Bar	-	Shows/Hides Side Bar.
Status Bar	-	Shows/Hides Status Bar.
Tool Bar Icons Size	-	Selects a size of icons in the Tool Bar (Small or Large).
Vertical Lines	-	Shows/Hides the vertical lines.
Horizontal Lines	-	Shows/Hides the horizontal line below every item in the window.

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Highlight Full Row	-	If Checked, the whole line will have the selection or the focus rectangle around it. If Unchecked, only item's main text will be highlighted.
Sort By	-	Controls the sequence or order of the folder contents by Name, Type, Size, Date or in Reverse Order.
Preferences	Ctrl + P	Sets up program options.

A.2.3. Tools Menu (*shortcut : Alt + T*)

Command	Shortcut	Description
Find	F3	Activates the Search Window to search contents of the inserted discs and also in the collection of previously created Short CD/DVD Images.
Short CD/DVD Image	Ctrl + I	Creates and adds a new CD/DVD image to the library.
Test Disc	Ctrl + T	Runs Disc Test.
Extract To ISO Image File	Ctrl + E	Creates ISO 9660 Image File.
Examine Sectors	Ctrl + X	Activates Examine Disc Sectors dialog.
Scan UDF Disc	Ctrl + U	Runs Scan UDF Disc
Identify Raw ISO Data	Ctrl + R	Runs search and identification of ISO files, without using a system and directories structures.
Scan FAT Data	Ctrl + D	Runs intensive search of files data on the flash media
View Image	Ctrl + V	Acivates Image(s) Viewer

A.2.4. Help Menu (*shortcut : Alt + H*)

Command	Shortcut	Description
Contents	F1	Opens the CDRoller online help.
Ordering Information	-	Displays information about ordering CDRoller.
FAQs	-	Displays Frequently Asked Questions (FAQs) with answers about CDRoller.
Technical Support	-	Displays information about technical assistance.
Home Page	-	Visits the CDRoller web page.
Register		Enables you to register CDRoller.
Upgrade		Displays upgrade instructions.
About CDRoller	-	Displays copyright notice.

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A.3. The Toolbars.

A.3.1. Main ToolBar.

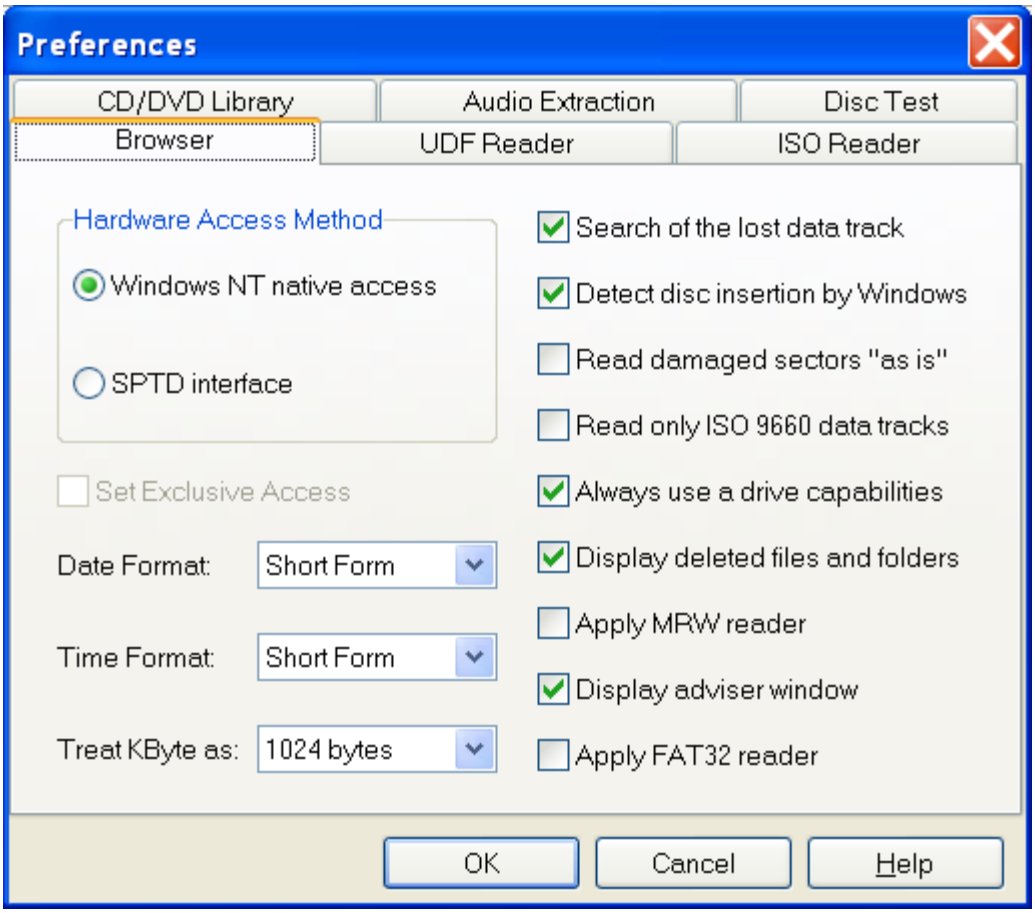
The buttons of the Main ToolBar duplicate the corresponding options in the File, View and Tools menu.

A.3.2. Secondary ToolBar.

Up One Level button returns focus to the parent item, usually to the parent folder (opens the folder of the higher level) that contains current folder.
Select All selects all items (files, sub-folders or audio tracks) in the current folder.
Deselect All unselects all items (files, sub-folders or audio tracks) in the current folder.
Show/Hides files checkboxes shows/hides checkboxes near each file or folder.

A.4. Preferences

A.4.1. Browser



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Hardware Access Method (default value is: *CDRoller proprietary driver* for Windows 9x/ME or *Windows NT native access* for Windows NT4/2000/XP/2003/Vista/7/8/8.1/10). Sets one of two methods to access hardware. The key feature of SPTD (SCSI Pass Through Direct) layer is an ability to provide a direct access to your computer drives and avoid a conflict with "malicious" filter drivers that can be installed by 3-rd party software. In other words, if you have another CD/DVD/BD related programs in your system and CDRoller cannot recognize the inserted disc or data recovery seems to be stalled, please select "SPTD interface" and try to read your disc again. Note. We do not distribute SPTD layer with CDRoller. It is available for download at http://www.duplexsecure.com .

Set Exclusive Access (default value *Uchecked*).
If *Checked*, only CDRoller will have an access to the hardware (your computer drives) via SPTD layer.

Date Format (default value S*hort Form*)
Sets the Date format used by the program to display the Date information.

Time Format (default value S*hort Form*)
Sets the Time format used by the program to display the Time information.

Treat KByte as: (default value *1024 bytes*)
Detects the way of 'kilobyte consideration' as 1024 bytes exactly (in 1024 bytes mode) or as 1000 bytes (in 1000 bytes mode). It may be useful for correct file (folders or audio tracks) size calculation, before these items will be sent to hard disk.

Search of the lost data track (default value *Checked*)
If *Checked* , the program searches the lost data track when a new disc is inserted or after **Refresh** command, and, if found, displays its contents in the List Window.

Detect disc insertion by Windows (default value *Checked*)
If *Checked* the program detects an arrival or removal of the disc using Windows "standard" tools (messages). This starts disc recognition automatically, without requirement of the refresh. If the program can not recognize your disc automatically, try to uncheck this option and repeat examination of a new disc by clicking the **Refresh** button in the Tool Bar.

Read damaged sectors "as is" (default value *Unchecked*)
If *Checked* , when reading **system area** and **folders,** unreadable sectors will be accepted "as-is". This may be useful in some circumstances, but it should be understood that the content of these "accepted" sectors could be all zero or partially correct data – there is no way to tell. You should use this mode only if the program can not "recognize" your damaged disc or you vitally need an access to the unreadable folder. Please keep in mind that your computer drive may not support reading of disk sector "as is" or the content of that sector may be denied by the further checks in compliance with ISO 9660 and UDF requirements.

Read only ISO 9660 data tracks (default value *Unchecked*)
If *Checked*, the program searches and verifies only ISO system area on data tracks after insertion of new disc. Discs with another file system, such as UDF, require additional recovery procedures that may take a some time, especially while reading multisession ones. If you are sure that your disc is actually recorded in **ISO 9660** format, you should check on this option in order to accelerate the disc recognition. Obviously, to read the discs with **UDF** file system, this option has to be unchecked

Always use a drive capabilities (default value *Checked*)
If *Checked*, when reading the damaged sectors, the program will apply some low-level methods and algorithms based on the capabilities of your computer drive. In some circumstances the drive can slow the process when meeting a bad zones (unreadable sectors). In this case we recommend you to uncheck this option.

Display deleted files and folders (default value *Checked*)

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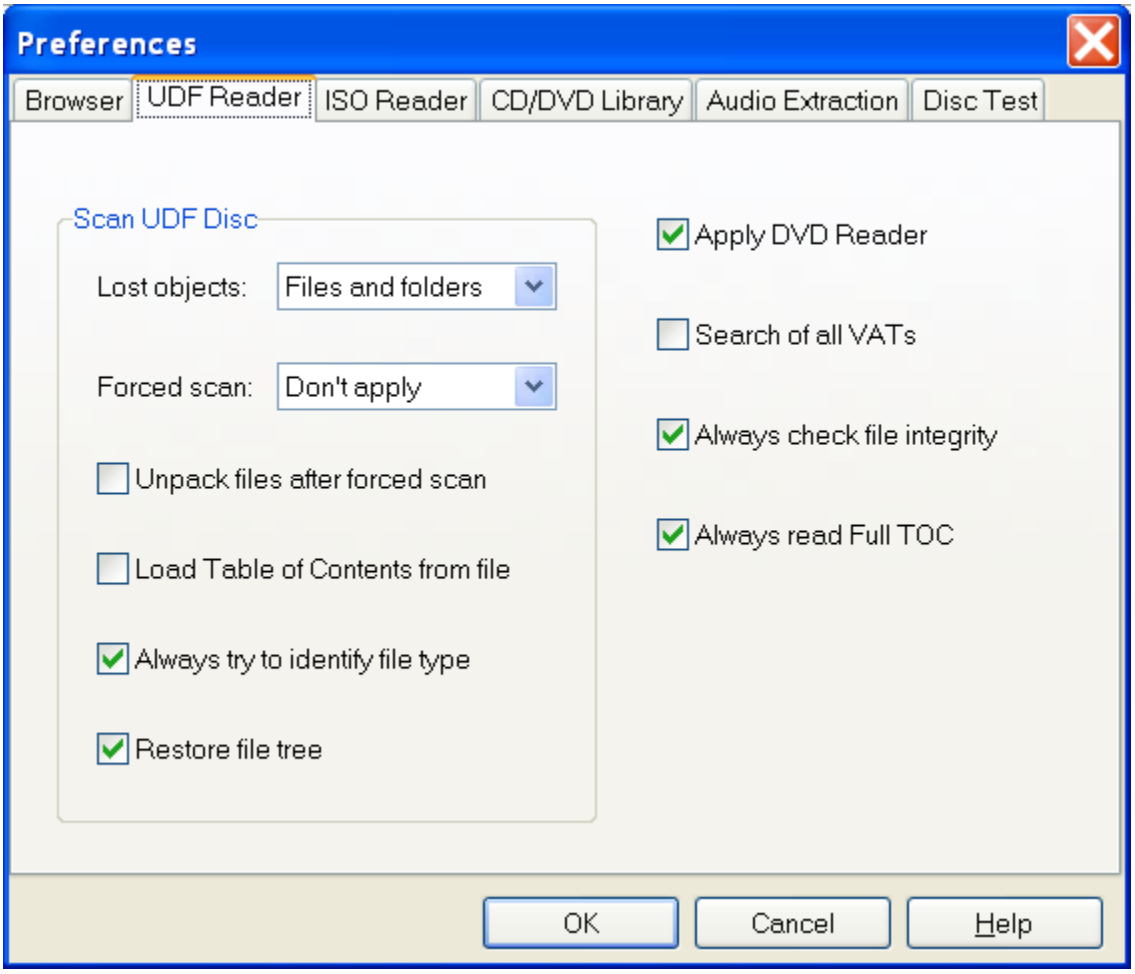
If *Checked*, the program displays files and folders having *deleted* characteristics on UDF disks. The objects are shown with special *Inaccessible file* icon in the List Window. You can try to recover them with the help of **Scan UDF Disc** command from Tools Menu.

Apply MRW reader (default value *Checked*)
If *Checked*, the program automatically recognizes CD-RW disk formatted in the "Mt.Rainier" CD-RW format (CD-MRW) placed into non-Mt.Rainier drive, and presents the data portion of the disk as a "read only" UDF format disk. We also recommend you use this to read the disk inserted into CD-MRW drive if your MRW disk was not ejected (closed by cd mastering program). For example, if the writing process was interrupted by a system or power failure.
Hint. To check the drive capabilities, use **Properties** command applied to the "empty" drive in the List window and select **Features** tab in the Properties dialog.

Display adviser window (default value *Checked*)
If *Checked*, a separate panel ("adviser") with some recommendations and results of disc analysis will appear inside the program window.

Apply FAT32 reader (default value *Unchecked*)
If *Checked*, the program automatically recognizes the disc, formatted with FAT32 file system.

A.4.2. UDF Reader



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Lost objects (default value *Files and folders*)
Determines what objects (files and/or folders) will be looked for by Scan UDF Disc.

Forced scan (default value *Don't apply*)
If the selected setting is different from the default value, the program will force the drive to scan your disc in order to find the lost files without using the data of system area. We highly recommend you to use this only if the inserted disk has not been recognized by CDRoller before, and you are also sure the disk contains the files. This may be useful if the disk was incorrectly finalized and system area was not written properly. For example, this problem often occures on Sony Mavica CD when the finalization step failed on the camera.
If you actually know the name of CD/DVD/BD mastering program (or device) that formatted your disk, try to select an appropriate value from the list of the following profiles:

Value	Description
Sony Mavica CD	The disk was mastered by Sony Mavica CD digital camera
Sony Mavica (O)	The disk is still open (non-finalized) by Sony Mavica CD digital camera
DirectCD CD-R	CD-R was formatted by Roxio (Adaptec) DirectCD/Drag-To-Disc v.6
DirectCD-RW74	CD-RW 74 min was formatted by Roxio (Adaptec) DirectCD
DirectCD-RW80	CD-RW 80 min was formatted by Roxio (Adaptec) DirectCD
InCD3 -RW74	CD-RW 74 min was formatted by Nero InCD v.3
InCD3 -RW80	CD-RW 80 min was formatted by Nero InCD v.3
PacketCD-R	CD-R was formatted by CEQUADRAT PacketCD
DirectCD-MRW	CD-MRW ("Mt. Rainier" CD-RW) was formatted by DirectCD
InCD3 -MRW	CD-MRW ("Mt. Rainier" CD-RW) was formatted by Nero InCD v.3
PacketCD-RW	CD-RW was formatted by CEQUADRAT PacketCD
InstWrite CD-RW	CD-RW was formatted by VOB InstantWrite
InCD4 -RW80	CD-RW 80 min was formatted by Nero InCD v.4
InCD4 -DVD-RW	DVD-RW was formatted by Nero InCD v.4
InCD4 -DVD+RW	DVD+RW was formatted by Nero InCD v.4
InCD4 -MRW	CD-MRW ("Mt. Rainier" CD-RW) was formatted by Nero InCD v.4
DragTo CD-RW	CD-RW was formatted by Roxio Drag-To-Disc v.6
DragTo CD-MRW	CD-MRW ("Mt. Rainier" CD-RW) was formatted by Roxio Drag-To-Disc v.6
DragTo DVD-RW	DVD-RW was formatted by Roxio Drag-To-Disc v.6
DragTo DVD+RW	DVD+RW was formatted by Roxio Drag-To-Disc v.6
DragTo DVD-R	DVD-R was formatted by Roxio Drag-To-Disc v.6
DragTo DVD+R	DVD+R was formatted by Roxio Drag-To-Disc v.6

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LiteOn DVD+R	DVD+R was mastering by LiteOn DVD recorder
LiteOn DVD+R (O)	DVD+R is **still open (non-finalized)** by LiteOn DVD recorder
Hitachi DVD-R (F)	DVD-R was created and **finalized** by Hitachi DVD camcorder
Hitachi DVD-R (O)	DVD-R is **still open (non-finalized)** by Hitachi DVD camcorder
Hitachi DVD-RAM	DVD-RAM was mastering by Hitachi DVD camcorder
Rec DVD+RW (F)	DVD+RW was created and finalized by standalone DVD Recorder (Thomson RCA, Philips, etc.)
Rec DVD+RW (O)	DVD+RW is **still open (non-finalized)** by standalone DVD Recorder (Thomson RCA, Philips, etc.)
Rec DVD-RAM	DVD-RAM disc was mastering by standalone DVD recorder
Rec DVD-RAM (E)	DVD-RAM disc was **quick-erased** by standalone recorder (e.g Panasonic DVD-RAM recorder)

Sanyo DVD+R (F)	DVD+R was created and finalized by Sanyo DVD+R/RW standalone recorder
Sanyo DVD+R (O)	DVD+R is **still open (non-finalized)** by Sanyo DVD+R/RW standalone recorder
Sony DVD-R (O)	DVD-R is **still open (non-finalized)** by SONY DVD Camcorder
Sony DVD-RW (O)	DVD-RW is still open (non-finalized) by SONY DVD Camcorder
Sony DVD201-RW	DVD-RW disc was created by Sony DCR-DVD201 camcorder
DragTo DVD-RAM	DVD-RAM disc (4.7GB) was formatted by Roxio Drag-To-Disc
B's CLiP DVD-RW	DVD-RW disc was formatted by BHA B's CLip Software
B's CLiP DVD+RW	DVD+RW disc was formatted by BHA B's CLip Software
Sony abCD CD-RW	CD-RW disc was formatted by Sony Vaio abCD software
Pan Rec DVD-R (O)	DVD-R disc is still open (non-finalized) by Panasonic standalone recorder
InCD4.3 CD-RW	CD-RW was formatted by Nero InCD v.4.3 or 5
InCD4.3 CD-MRW	CD-MRW ("Mt. Rainier" CD-RW) was formatted by Nero InCD v.4.3 or 5
InCD4.3 DVD-RAM	DVD-RAM was formatted by Nero InCD v.4.3 or 5
InCD4.3 DVD-RW	DVD-RW was formatted by Nero InCD v.4.3 or 5
InCD4.3 DVD+RW	DVD+RW was formatted by Nero InCD v.4.3 or 5
DragTo7 CD-R	CD-R was formatted by Roxio Drag-To-Disc v.7 (7.5 or 8)
DragTo7 CD-RW	CD-RW was formatted by Roxio Drag-To-Disc v.7 (7.5 or 8)
DragTo7 CD-MRW	CD-MRW ("Mt. Rainier" CD-RW) was formatted by Roxio

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	Drag-To-Disc v.7 (7.5 or 8)
DragTo7 DVD-RW	DVD-RW was formatted by Roxio Drag-To-Disc v.7 (7.5 or 8)
DragTo7 DVD+RW	DVD+RW was formatted by Roxio Drag-To-Disc v.7 (7.5 or 8)
DragTo7 DVD+-R	DVD+R/-R was formatted by Roxio Drag-To-Disc v.7 (7.5, 8 or 9)
DragTo7 DVD-RAM	DVD-RAM disc (4.7GB) was formatted by Roxio Drag-To-Disc v.7 (7.5 or 8)
DLA CD-RW	CD-RW was formatted by Sonic DLA
DLA DVD-RW	DVD-RW (4.7 GB) was formatted by Sonic DLA
DLA DVD+RW	DVD+RW (4.7 GB) was formatted by Sonic DLA
AVCHD DVD-R	Mini DVD-R was created by Sony AVCHD camcorder
AVCHD DVD+R DL	Mini DVD+R DL was created by Sony AVCHD camcorder
AVCHD DVD-RW	Mini DVD-RW was created by Sony AVCHD camcorder
AVCHD DVD-RW(2)	Mini DVD-RW was created by Panasonic AVCHD camcorder

AVCHD DVD+RW	Mini DVD+RW was created by Sony AVCHD camcorder
InCD6 CD-RW	CD-RW was formatted by Nero InCD v.6
InCD6 CD-MRW	CD-MRW ("Mt. Rainier" CD-RW) was formatted by Nero InCD v.6
InCD6 DVD-RAM	DVD-RAM was formatted by Nero InCD v.6
InCD6 DVD-RW	DVD-RW was formatted by Nero InCD v.6
InCD6 DVD+RW	DVD+RW was formatted by Nero InCD v.6
InCD6 BD-R	BD-R was formatted by Nero InCD v.6
D2D CD-R	CD-R was formatted by Roxio Drag-To-Disc v.9
D2D CD-RW	CD-RW was formatted by Roxio Drag-To-Disc v.9
D2D CD-MRW	CD-MRW ("Mt. Rainier" CD-RW) was formatted by Roxio Drag-To-Disc v.9
D2D DVD-RW	DVD-RW was formatted by Roxio Drag-To-Disc v.9
D2D DVD+RW	DVD+RW was formatted by Roxio Drag-To-Disc v.9
D2D DVD-RAM	DVD-RAM was formatted by Roxio Drag-To-Disc v.9
D2D BD-R	BD-R was formatted by Roxio Drag-To-Disc v.9
Win7 DVD-R	DVD-R / DVD+R was formatted by Windows 7
Win7 DVD-RW	DVD-RW was formatted by Windows 7
Win7 DVD+RW	DVD+RW was formatted by Windows 7
Win7 BD-R	BD-R was formatted by Windows 7

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Win7 BD-RE	BD-RE was formatted by Windows 7

Warning. Please use the forced scan at your own risk. There is no 100% guarantee to retrieve all files from all disks in all cases. Please keep in mind, that some files may be incorrectly written, erased or partially re-written by a new ones.

Unpack files after forced scan (default value *Unchecked*)
If *Checked*, the program will try to decode the files found by the forced scan on the disks compressed by Roxio (Adaptec) DirectCD. The found files can be recovered with the help of **Recover All, Recover Selected** or **drag & drop** commands in the "Lost objects detected..." window.

Load Table Of Contents from file (default value *Unchecked*)
If *Checked*, you are prompted to select a file with the table of contents of the objects found by Scan UDF Disc before, instead of new scan of your disk.

Always try to identify file type (default value *Checked*)
If *Checked*, the program will try to identify the types of found files at the scan stage (preliminary identification). On some discs and drives this may slow the scan process.

Restore file tree (default value *Checked*)
If *Checked*, the program tries to restore an original file tree from each found folder after "Scan UDF Disc" is completed or canceled. Note. For the damaged discs, we recommend to run the "Scan UDF Disc" twice, with checked and unchecked option.

Apply DVD Reader (default value *Checked*)
If *Checked*, the program will try to recognize and verify DVD (BD, HD-DVD) automatically. If *Unchecked*, only CD identification methods will be applied.

Search of all VATs (default value *Unchecked*)
Virtual Allocation Table (VAT) is an important part of the UDF File System. VAT's location is crucial for CD-R/DVD-R/DVD+R/DVD+R DL disks created with the help of drag & drop software, such as well-known Roxio (Adaptec) DirectCD and Drag-To-Disc. If the VAT can not be found or is corrupted, files will be missing.

If the option is *Checked*, the program will try to search all VATs. This may give you a chance to find and recover the files from the previous backups, including the **files accidently deleted** by drag & drop software. If some old VATs are found, the program displayes their files and folders in a separate sessions. Further, all sessions can be viewed by the built-in Session Selector.

Always check file integrity (default value *Checked*)
When *Checked* the program always test the file before decompression, using the data of file header. If an important file data seem to not be recovered, try to uncheck this option. Please keep in mind that you may get an unpredictable results, so try this only at your own risk.

Always read Full TOC (default value *Checked*)
Try to **uncheck** this box if CDRoller seems to hang up your system when analyzing the disc. This problem can be caused by DVD43 driver installed in your system. This driver is bundled with some DVD programs (DVD Idle Pro or DVD Region), and can prevent a normal work of CDRoller.

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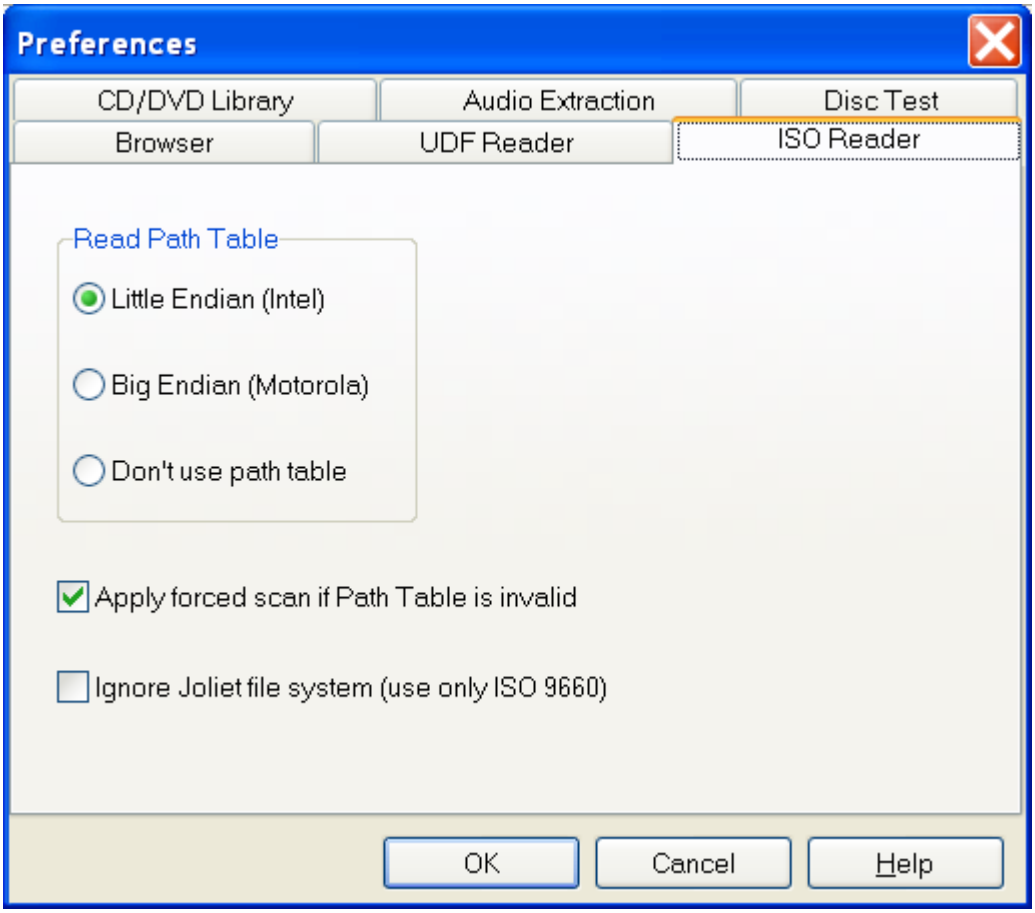
A.4.3. ISO Reader



Read Path Table (default value *Little Endian (Intel)*)
By default, the program does use the Path Table because this is the most fast method to access the directories on your ISO 9660 disc. CDRoller uses the Big Endian addresses by default, because Windows doesn't use them, so CDRoller offers an alternative method at once, if your disc is not visible by Windows. However, for a particular disc, if the default settings doesn't work properly, you can try another settings. For example, if the Path Table seems to be invalid, you can select **Don't use path table**. This will force CDRoller to start from the Root directory and scan all directories on the "troubled" disc.

Apply forced scan if Path Table is invalid (default value *Checked*)
If *Checked*, the program will automatically scan the directories in case of inaccessible Path Table.

Ignore Joliet file system (use only ISO 9660) (default value *Unchecked*)
If *Checked*, any Joliet directory information on the disc will be ignored and only the ISO-9660 directory will be displayed. This may be useful if the Joliet directory information is corrupted and files seem to be inaccessible on the disc. With the help of ISO-9660 directories you can try to access the files data, bypassing the Joliet file system.

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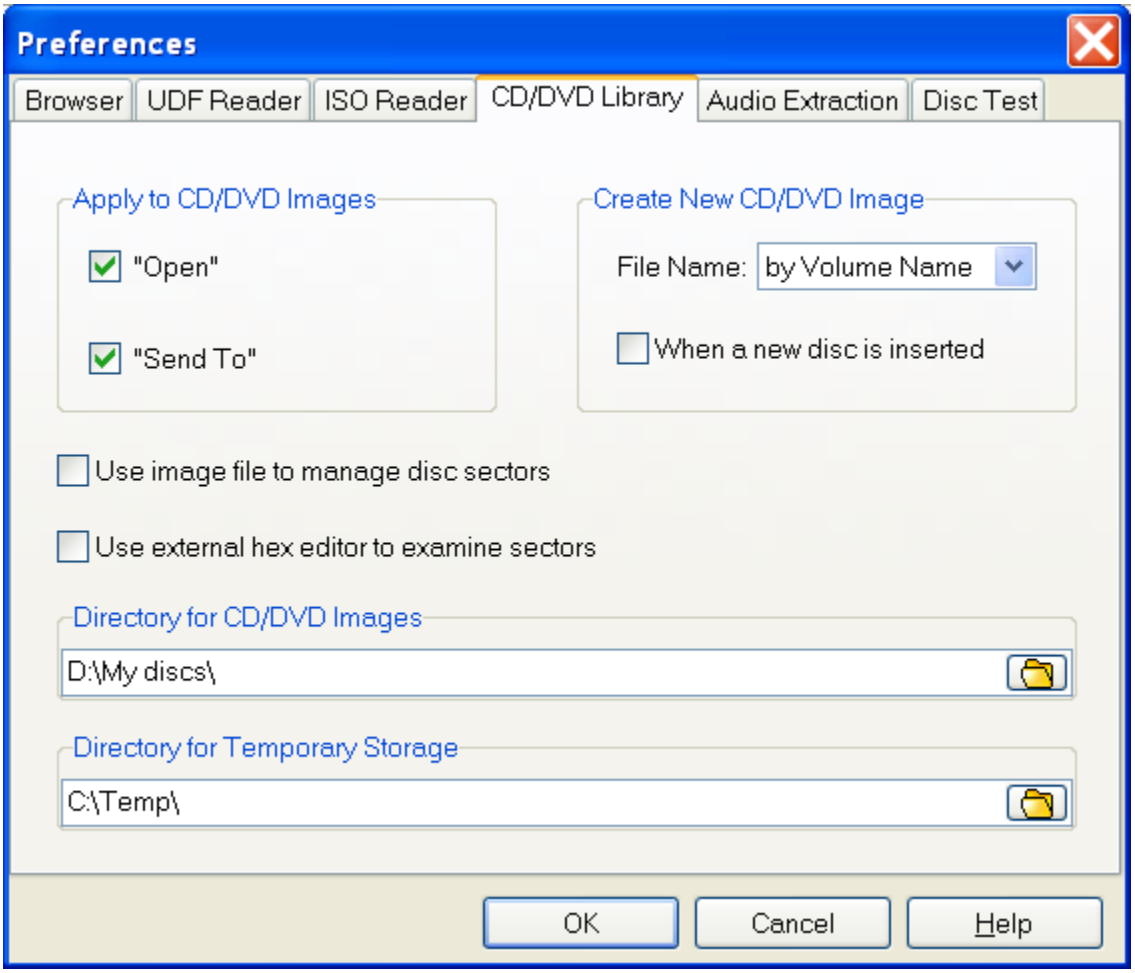
A.4.4. CD/DVD Library



Apply To CD/DVD Images, group of options :
- **"Open"** (default value *Checked*);
- **"Send"** (default value *Checked*);

When *Checked* the program tries to apply an appropriate command to the created CD(DVD) image.

File Name (default value *by Volume Name*)
The File Name can be created either by choosing the Disk Volume Name (by *Volume Name* mode) or summarizing the word 'CDIM' with four random digits (*Random* mode) or typing CD(DVD) Image name manually (*Manual* mode).

When a new disc is inserted (default value *Unhecked*)
When Checked the program creates CD/DVD Image for a newly inserted disc.

Use image file to manage disc sectors (default value *Unhecked*)
If *Checked*, the program will create and then use an own image file to manage the disc data. Here, image file means a combination of .tbl and .dat files having the same name before file extension. There are 2 big advantages of image file. First, some CD and DVDs can be "poor-written". Often, one CD/DVD drive can read only a part of such disc. If another CD/DVD drive can access to the bad sectors, CDRoller simply adds a new data to the image file created before. In other words, you get the best out of each and every drive you use. Second, if you intend to read the disc twice, you get much greater speed, having the image on your hard drive. Especially, when there are bad sectors on CD or

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DVD.

When you insert the disc, you are prompted to type image file name that will be associated with this disc. We recommend to use friendly and unique name that simply tells about content of inserted disc. For example, 'My photo album 2010' or 'My trip to Canada in 2010'. Further, the program will create .tbl and .dat files and use them to manage disc data.

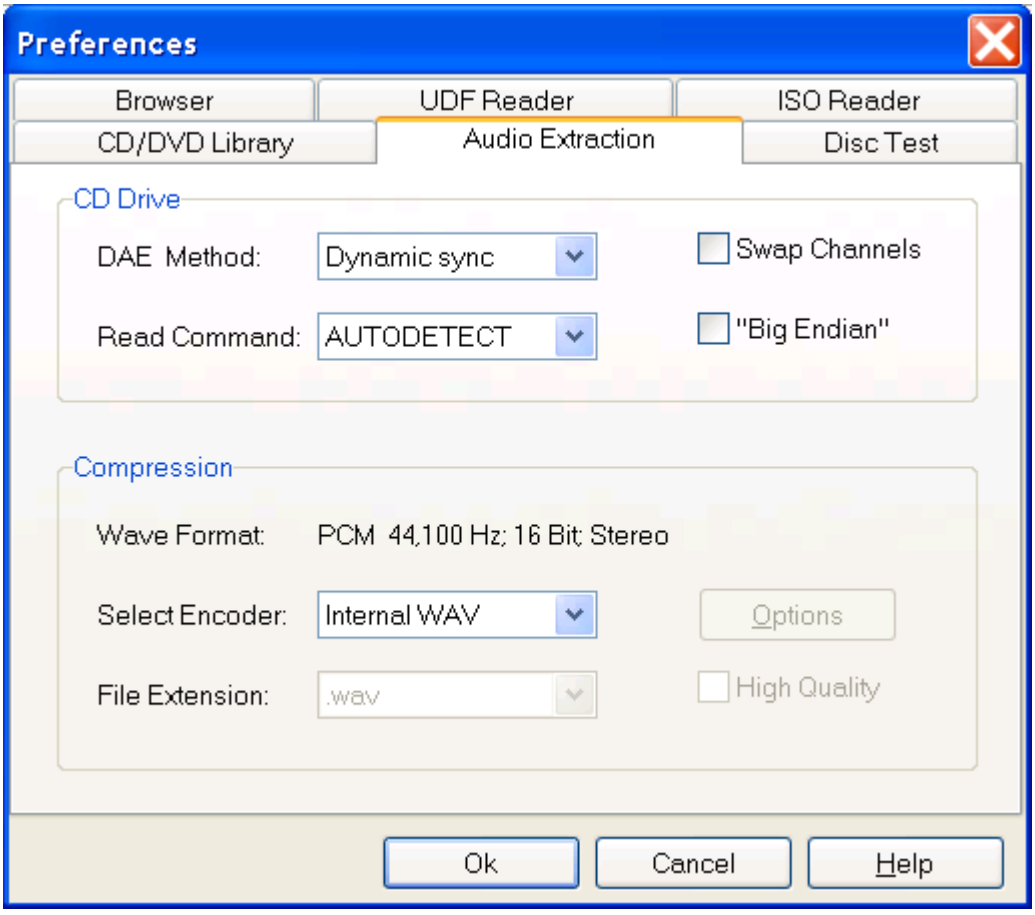
Use external hex editor to examine sectors (default value *Unhecked*)
When *Checked*, you can use an external hex editor to examine disc sectors. For example, WinHex, FlexHex, Hex Workshop, HxD or others.

Directory for CD/DVD Images (*My Documents directory path* by default)
Assigns the directory on your Hard Disk Drive (HDD) to store the created CD/DVD Images.

Directory for Temporary Storage (default value *Windows Temporary Directory*)
Assigns the directory on your HDD to be used as Temporary Storage for drag-and-drop and Open operations.

Warning. Please do not select "**Directory for Temporary Storage**" as destination folder for **Recover All** and **Recover Selected** operations. When you close CDRoller, the program automatically cleans out this temporary folder, and all recovered files and subfolders will be lost!

A.4.5. Audio Extraction



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DAE Method (default value *Dynamic Sync Width*)
With the help of *Dynamic Sync Width* method, the program tries to synchronize a new audio data with previously read block of audio sectors by changing overlap area between two consecutive read blocks. *Fixed Sync Width* means that a set amount of frames is used for blocks synchronization. Read error detection and lost synchronization control are in the both methods. The audio extraction by *Burst Copying* method is the fastest. Burst copy doesn't use any synchronization and error correction.

Read Command (default value *AUTODETECT*)
If *AUTODETECT* (recommended setting) option has been selected, the program tries itself to find an appropriate read algorithm for user's CD drive.
SCSI READ CD function is the base command recommended by SCSI-3 Standard for reading audio frames. It is supported by all ATAPI drives that have DAE feature, and some SCSI devices.
SCSI READ (10) function may be used for DAE on SCSI drives support SCSI-2 Standard.
Note. The list of audio read commands used by program in *AUTODETECT* mode is not limited by two ones mentioned above. Some known read functions are absent in the selection list because a wrong chosen extraction command may cause problems on some SCSI systems.

Swap Channels (default value *Unchecked*)
When checked, the program itself will exchange left and right channels in the audio samples before writing them into output file. This may be suitable for some CD drives to exchange stereo channels while extraction.

"Big Endian" (default value *Unchecked*)
Motorola " Big Endian" mode is often used on drives from Grundig, IMS, Kodak, Ricoh and some others. WARNING. Check this option only if the extracted output file seems to consist of noise!

Wave Format (default value *44,100 Hz; 16 Bit; Stereo*)
Indicates a brief description of audio compression format that has been selected.

Select Encoder (default value *Internal WAV*)
Assigns an appropriate encoder from the list of available ones.

File extension (default value .wav)
Indicates the extension of output file (.wav, .mp3 or .raw).

Options
Activates an options dialog box to select an audio compression format.

High Quality (default value *Unchecked*)
For some audio compression formats, specifying this flag may improve the audio quality or other characteristics.

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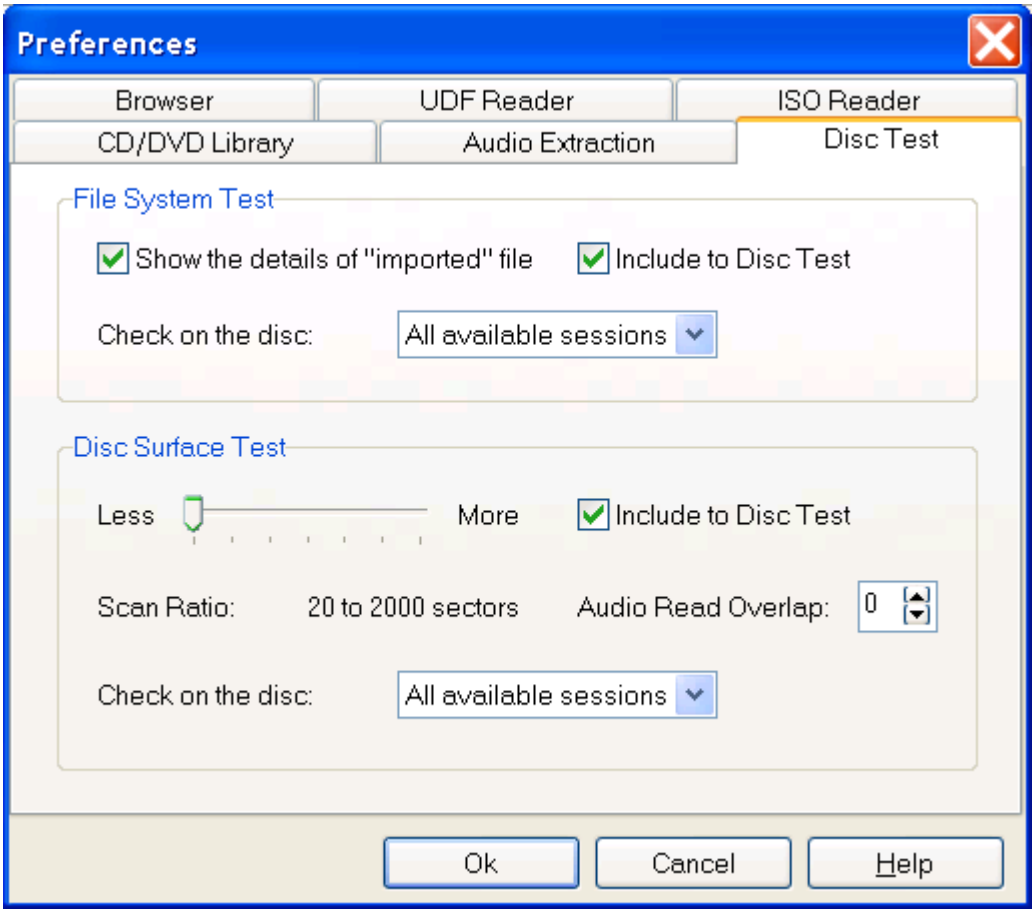
A.4.6. Disc Test



File System Test group.
Show the details of "import" file (default value *Checked*)
For multisession discs only. When *Checked*, a report window displays some info whether a file was imported from the prior session ("came from session # ..."), or not.
Include to Disc Test (default value *Checked*)
When *Checked* File System Test will be included to the list of available tests.
Check on the disc (default value *All available sessions*)
If *All available sessions* option has been selected the program checks file systems of all sessions on multisession disc. In case of *Selected session only* the selected session is examined.
Note. There is no difference between these two settings for single session disc.

Disc Surface Test group.
Scan ratio Track Bar (default position *20 to 2000 sectors*)
Sets the current ratio of read sectors to total sectors in the block. For example, "20 to 2000 sectors" setting means that the program reads 20 sectors in the block of 2000 sectors and therefore, then skips (2000 - 20) sectors before the next reading. This setting is used for Disc Surface Test and also for DAE Quality test.
Include to Disc Test (default value *Unchecked*)
When *Checked* Disc Surface Test is included to the list of available tests. For mixed CDs it means that as Disc Surface Test as DAE Quality test will be included to the list of available tests.
Check on the disc (default value *All available sessions*)
If *All available sessions* option has been selected the program scans disc surface on all sessions. In case of *Selected session only* the selected session is examined on multisession disc.

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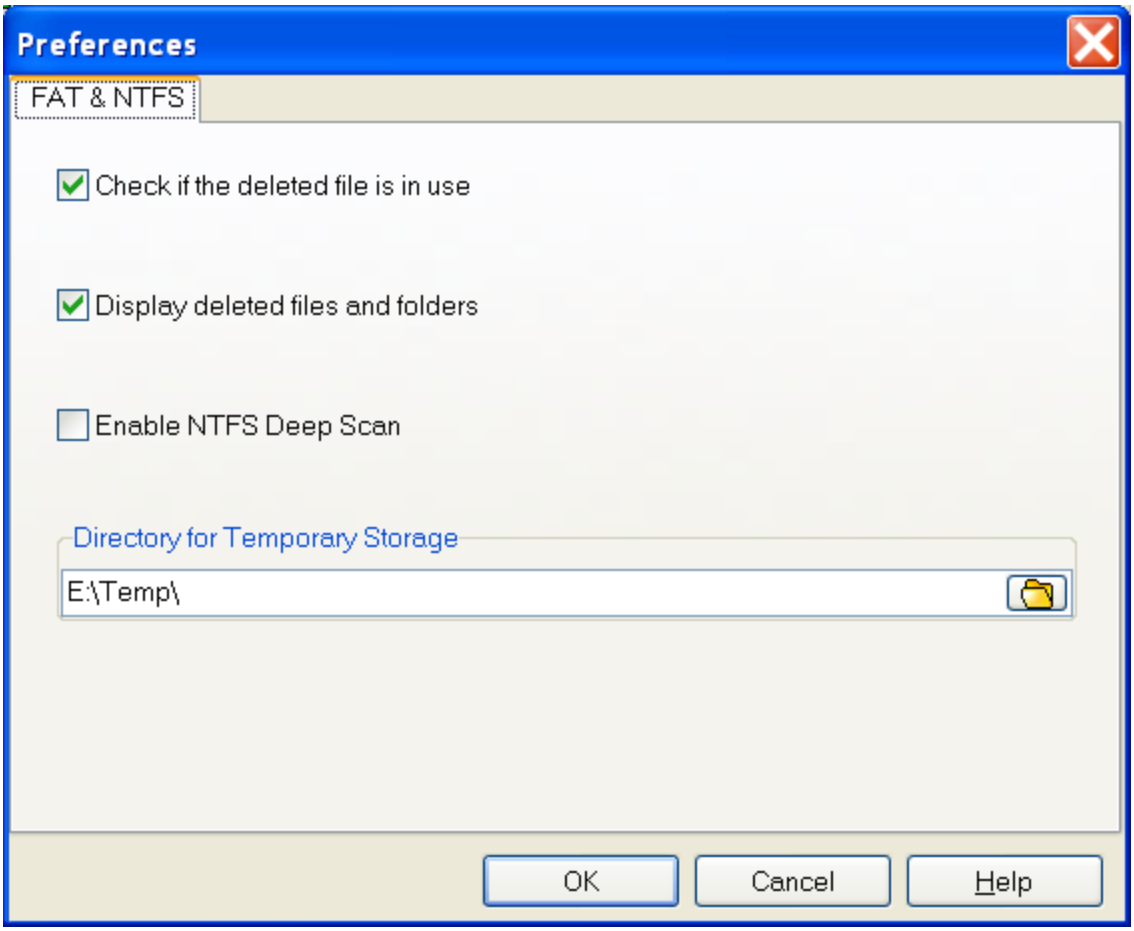
Note. There is no difference between these two settings for single session disc.
Audio Read Overlap (default and minimum values are *0*, maximum value is *7*)
Sets the number of overlapping sectors for DAE Quality test. This may be useful to determine the value of overlap for so-called "jitter correction" while reading CD audio data.

A 4.7. FAT & NTFS



Check if the deleted file is in use (default value *Checked*)
If *Checked*, the program always tests whether each cluster of deleted file is "in use" or not. In other words, CDRoller tries to test an integrity of the deleted file. If any of the clusters of a deleted file are "in use", this can indicate that the cluster was reassigned to another file and part of the deleted file was overwritten by another.

There are many scenarios of cluster allocations and how files may be overwritten by another files. If you're looking for the data of big video file, it may be useful to try to find the file with unchecked option. Having assumed the most part of file is located in the sequential clusters, a loss of small number of clusters may not affect the functionality of all file.

Display deleted files and folders (default value *Checked*)
If Checked, the program displays found objects in the special $LOST FILES$ folder.

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Enable NTFS Deep Scan (default value *Unchecked*)
If Checked, the program scans unused clusters, trying to locate the lost files based only on file signatures, ignoring the file system records.

Directory for Temporary Storage (default value: *Windows Temporary Directory*)
Assigns the directory as Temporary Storage for some operations.

Warning.
Please do not select "Directory for Temporary Storage" as destination folder for Recover All and Recover Selected operations. When you close CDRoller, the program automatically cleans out this temporary folder, and all recovered files and subfolders will be lost!

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Annex B License Agreement

CDRoller - End User License Agreement (EULA).

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